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THE GERM THEORY OF DISEASE.*

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MR. PRESIDENT AND GENTLEMEN,—Our subject this evening is the Germ Theory of Disease, and a more important doctrine, in its bearing on the health and welfare of mankind and the domesticated animals, has never been given to the world. It is disturbing and exercising both the scientific and the practical mind, and revolutionising our ideas of the consideration and treatment of disease. Every day new facts connected with it are brought to light, and every week hundreds of converts are enrolled in its ranks. Its greatest aid is the microscope, which is the true Columbus of medical science, and which is continually bringing new worlds into our ken.

We must not, however, be too sanguine about the Germ Theory of Disease, and we must learn to study it patiently, and without too much enthusiasm, for many and weighty matters have yet to be investigated and confirmed. At present, however, we may reasonably say that we have in this theory already sufficient groundwork to inspire us with boundless hope.

To the veterinary profession it is extremely gratifying to know that Professors Chauveau and Toussaint—two French veterinary

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surgeons—have taken most prominent and leading parts in its initiation and elucidation. Professor Chauveau is acknowledged to be one of its foremost pioneers, and of him Dr. Charles Cameron, M.P., in his very excellent paper on the "Microbes of Disease," says: "Monsieur Chauveau, a veterinary surgeon of Lyons, who first demonstrated that infections were not liquid or gaseous, but particulate, and whose many invaluable researches are far too little known in this country."

M. Toussaint is famous for many discoveries in this field, amongst others of the bacterium or microbe which produces Fowl Cholera, nor must we forget the great services of Professor Bouley, the distinguished Director-General of the French Veterinary Schools. We might also name many other Continental veterinarians, who are noted as original experimentalists in connection with the Germ Theory. We may, however, well quote what Dr. Charles Cameron, in an address to the Social Science Congress, in 1881, said about foreign members of our profession:—"It is their investigations into the diseases of the domesticated animals which have enabled the veterinary surgeons of France, within the last few months, to make such preponderating contributions towards the solution of questions vitally affecting, not merely those animals, but mankind." Dr. Cameron, in the same address, urged the institution of Chairs of Comparative Medicine and Pathology, and the desirability of carrying this suggestion into effect must be very apparent to all careful students of our medical literature.

Coming now to our British Islands, we have investigators who have made valuable contributions towards throwing light on the Germ Theory, and we may name Dr. Lionel Beale and Drs. Burdon-Sanderson and Klein, and Mr. Cheyne, as the most prominent. Professor Lister's great discovery of antiseptic surgery—an outcome of the Germ Theory—has been of incalculable benefit to mankind.

In reading about researches connected with the doctrine we are considering, it will not fail to strike you how rarely any British names are mentioned. In some measure this may be, speaking for the moment of the medical profession, that any discoveries it may have made are dwarfed by the greater ones of

the Continental investigators; nor must we forget under what restrictions and difficulties experiments on animals are here carried on.

Professor John Gamgee and Mr. George Fleming, two veterinary surgeons, have been prominent in spreading information about contagious diseases, and Mr. Fleming is of European reputation as one of the foremost of comparative pathologists. But why do not the veterinarians of the United Kingdom come more to the front in these matters? The answer is not far to seek. On the Continent the veterinary profession receives great State aid and patronage, and is therefore abreast of the foremost as one of light and leading. In our own country it receives no State aid. Let that be duly given, and I have no doubt that it would soon equal all others in this and kindred matters which we have now under consideration. That it receives no State aid is, we believe, mistaken policy, for such assistance would be quickly repaid a hundred-fold. That the veterinary profession of the United Kingdom has, by its own unaided exertions, done such incalculable services to the country, redounds to its everlasting credit.

The Germ Theory of Disease is so vast a theme, that we can only, in the limited time at our disposal to-night, briefly notice its most interesting features, and glance at some of the most important diseases of our domesticated animals to which it applies. I will endeavour to put what I have to say in plain language, and free from what are, to very many people, unintelligible words.

Dr. Aitken, in his "Outlines of the Science and Practice of Medicine," gives the following excellent definition: "The Germ Theory holds that each specific disease has a specific poison-germ, which lives, grows, and has a being specifically distinct from each and all other germs." By a specific disease we mean one which has its own peculiar characters, which distinguish it from all other diseases.

As an advocate of the Germ Theory, I will at once express my belief that every communicable, or transmissible, or contagious, or infectious, or specific disease depends on living organisms for its production and development. Permit me to say here, that throughout this paper I shall often use the

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words "contagion" and "infection" as conveying the same meaning.

It is becoming recognized that all specific and contagious diseases are produced by a minute living organism—a parasite—supposed to be of low vegetable life, and that this parasite cannot be spontaneously generated, for, as Professor Tyndall says, "As surely as a thistle rises from a thistle, as surely as the fig comes from the fig, the grape from the grape, the thorn from the thorn, so surely does typhoid virus increase and multiply into typhoid fever, the scarlatina virus into scarlatina, the small-pox virus into small-pox. What is the conclusion that suggests itself here? It is this—that the thing which we vaguely call a virus, is to all intents and purposes a seed."

Under the head of "Germs," Bacteria of all kinds are included, and under the head of Bacteria are included bacilli, micrococci, vibrios, spirilla, etc. On the Continent these organisms are usually called Microbes, which is a much better term. I will now describe these disease-producing agents. There is first the bacterium, or bacterion, or bacillus, Greek and Latin words signifying "a little rod." The Bacteria, then, are minute, rod-shaped bodies, which, in the diseases they produce, are found in the blood, fluids, and tissues of the body. They multiply themselves with great rapidity by what is called transverse fission; that is, one divides into two or more, and so on, and they also multiply by giving origin to spores, or germs, or seeds—three words here meaning the same thing—which develop into the likeness of the parent-organism.

Bacteria are very small, about the $\frac{1}{2500}$th of an inch in length, and many are even smaller. They are about the $\frac{1}{25000}$th of an inch in diameter. If you look at the diagram, and compare them, you will see that a bacterium is very often not as large as a red blood-corpuscle. Now, it is calculated that if placed edge to edge, ten millions of red blood-corpuscles would lie on a square inch of surface; yet, as we have just seen, many of the bacteria are much smaller than the blood-globules. This enables us to readily understand how germs are wafted about in the atmosphere, which may thus be—and doubtless often is—a disease-carrier.

Then there is another disease-producing agent, or bacterium, called the micrococcus, which is an exceedingly minute round organism, and the diplococcus, a kind of double micrococcus. There is the vibrio, a sort of lengthened cell, which often moves about in a lively manner. There is also the spirillum, which is the cause of Relapsing Fever. There are numerous other microbes which it is unnecessary to mention here.

Under the microscope many of these organisms are seen to move about in different ways. All of them under favourable conditions rapidly multiply themselves. You will naturally ask, are they animals or vegetables? The boundary-line between animal and vegetable life is extremely shadowy; however, it is considered that they are of a low vegetable type.

The bacteria are easily killed by heat, and by some chemical solutions, but their spores, or germs, or seeds—whichever you like to call them—are very tenacious of life. Some of the spores may be boiled for two or three hours without being killed, and if dried, they will keep for a long time, for months or even years, and show that they are still alive when they meet with suitable conditions.

It should here be said that bacteria of different kinds are almost everywhere; in our food, and water, and milk, and other fluids, and in the atmosphere. We also know that the putrefaction of animal and vegetable substances is caused by bacteria. Keep these away, and those things will not rot. Professor Huxley says, "All the forms of putrefaction which are undergone by animal and vegetable matters are fermentations set up by bacteria of different kinds; therefore, putrefaction is a concomitant, not of death, but of life." Septicæmia, or blood-poisoning, and Pyæmia also depend on certain microbes being morbidly at work in the body.

I have already expressed the belief that all transmissible and contagious diseases are caused by living organisms, and that each disease has its own particular germ, which only produces its like, just as we see wheat produce wheat or an acorn an oak. And we may reasonably believe that each specific or particular kind of germ requires for its propagation suitable nourishment and favourable conditions, without which it will sooner or later perish.

And it is highly probable that each kind of specific germ has, when it enters the body, a favourite locality, or resting-place, or nest, where it can best multiply itself. We may here remark that disease-germs can enter the blood-vessels, and even penetrate the white blood-corpuscles. It is likewise probable that disease-germs must not only enter the body to produce their effects, but also that the body must afford them suitable conditions to enable them to multiply, and so powerfully attack their host. For this reason, perhaps, strong healthy animals often resist infection or bear it well, while the weak and debilitated fall an easy prey and succumb.

We may ask, how is it that the bacteria attack the body, derange its functions, causing it to be ill, and then, after a time, frequently cease their operations? May we not reasonably think that the body often recovers because the parasites have exhausted the suitable food and conditions for their existence, or, in other words, find the body uninhabitable, and perish? To speak of recurring fevers, like ague and some others, the very probable suggestion has been offered, that successive crops of bacteria come to maturity, each coming to maturity being attended by a return of the illness. If not, how can we explain the periodical recurrence of some fevers; for instance, the tertian and quotidian, and the daily hectic access of Phthisis? Dr. J. E. Pollock, in his recently-delivered lecture on the Modern Theories and treatment of Phthisis, speaking of this recrudescence, says: "Chemical ferments would not act so, but would work through the whole system at once, and either kill the patient or exhaust themselves, by finding no more material to work on."—*Lancet* March, 1883.

But very many observers, whose opinions are entitled to the greatest consideration and respect, will not yet give in their adhesion to the Germ Theory of Disease, and they stoutly maintain that the germs are a disease-product, or consequence, and not the cause. Some hold that what we call disease-germs may occur in the body without previous infection, and as a result of morbid processes; and some maintain that they exist in all living and healthy animals, and that they are not causes of disease, but only become so when abnormally increased. As

we proceed you can form your own opinions; but I may at once say, that when we find that, if we take infected fluid and filter away the germs, it becomes harmless, it is difficult to look upon them as otherwise than the disease-producing agents. In relation to this, it may be stated that M. Pasteur has lately published a rather remarkable experiment. He suspended a tube vertically in one of the cellars of the Observatoire at Paris. This tube contained an exalted culture of Splenic Fever virus, or bacteria. After a time the bacteria and their spores settled at the bottom of the tube. He first inoculated with the top liquid, and it proved inoffensive; then he inoculated with the lower liquid, and it killed the animals experimented upon. This is a sufficiently striking experience. He also adds that M. Vulpian, the physiologist, lately informed him that he had made the interesting observation that the filtration of a poisonous solution of strychnine can make the liquid harmless.—*Revue Scientifique*, 20th January, 1883.

Disease-germs being, as we have seen, so exceedingly small, can be readily carried in the atmosphere, and so be deposited in wounds, or they may he breathed into the lungs, as in Scarlet Fever and Measles. Or they may be swallowed in the food or drink, as in Cholera, Typhoid Fever, and Dysentery. A third way of conveying infection is by bites, as of a rabid animal, or punctures, as in snake-bite, or by actual contact of the healthy with the sick, allowing germs to get access through the skin, and, as is also believed, sometimes by a rabid dog licking the hand.

In describing the Germ Theory, it has become customary to select the action of the yeast-plant as an illustration. When the yeast germs, which are very small ovoid vegetable bodies, are added to any saccharine solution which is kept warm, they at once begin to rapidly develop and multiply themselves, and the result is what is called fermentation, and alcohol and carbonic acid are formed. Now mark this, a saccharine solution will not ferment unless yeast gets into it. If you filter yeast so as to catch the germs and then add its fluid without them, the saccharine fluid will not ferment. If you add a little yeast to saccharine fluid, then boil it and exclude air, unless it has previously passed through cotton-wool, it will not ferment, because

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boiling has killed the yeast. So, as Professor Huxley says, "These experiments afford evidence, 1st, that there is something in the yeast which provokes fermentation; 2nd, that this something may have its efficiency destroyed by a high temperature; 3rd, that this something consists of particles which may be separated from the fluid which contains them, by a fine filter; 4th, that these particles may be contained in the air, and that they may be strained off from the air by causing it to pass through cotton-wool" ("Practical Biology." Article, Yeast). We thus see that the yeast germs behave very like the disease-producing bacteria we are now considering.

The cultivation of silkworms in France is a great source of wealth. In 1865, a disease was committing great ravages among them. M. Pasteur was requested to investigate it, and discovered that it was caused by microscopic living organisms. We have not now time to describe how after five years of patient observation M. Pasteur showed the silk-growers what caused the disease, viz., microscopic living parasites, which invaded the silkworm's body, but he also pointed out to them the way to stamp out the malady by breeding the worms only from uninfected eggs. The successful result of his investigations was gratefully and duly acknowledged.

(*To be continued.*)

ACTINOMYKOSIS: A NEW INFECTIOUS DISEASE OF ANIMALS AND MANKIND.

BY GEORGE FLEMING, F.R.C.V.S., A.V.D.

(*Continued from p.* 243.)

Prognosis.

The prognosis must depend not only upon the locality or anatomical seat of the disease, but also upon the extent to which it has developed itself. When an important organ is involved, and that extensively, or when the disease is but slightly advanced but is beyond reach, then the prognosis must be unfavourable.

When it is accessible, and has not caused serious alteration, and when it can be removed or palliated within a certain time, then it must be pronounced favourable. Sometimes spontaneous recovery takes place, probably owing to the fungus losing its vitality, through diminished nutritive supply from retraction of the connective tissue stroma, and its becoming encapsuled in lime salts.

Treatment.

The treatment of Actinomykosis belongs exclusively to the domain of surgery, and its object must be the extirpation or destruction of the microphyte. This is only possible when it is accessible to the hand, surgical instruments, or destructive agents—as caustics. Tumours situated on the jaws or face can be removed by cutting instruments, but it must be for the veterinary surgeon to determine as to whether operation will be profitable, from a pecuniary point of view. It must be remembered that resection of the jaws, which is generally a desirable and successful operation in man, is not to be recommended in the case of animals, for obvious utilitarian reasons. If it is decided that treatment be resorted to in the case of these and other easily-accessible Actino-mykomatous tumours, they should be removed according to surgical principles, and the wounds dressed with agents which will be likely to destroy any spores of the fungus which may chance to remain ; or the attempt may be made to destroy the fungus by injecting these agents in a fluid state into the centre of the mass. Johne speaks favourably of the action of sulphate of copper in destroying the fungus.

With regard to Actinomykosis of the tongue, success in treatment must depend upon the condition of the organ, *i.e.*, the extent to which it is invaded by the fungus. When this is near the surface it is easily destroyed by caustics, as Carbolic Acid (1 to 25 of water), Tinct. ferri perchlorid., or Liq. ferri perchlorid. fort., diluted with only two parts of water. The latter agent has been very successfully employed by Mr. James, who states with regard to it, "Only at the commencement of treatment is it necessary to dress every day ; after a week, once in two or three days may be sufficient, but I leave that to the discretion of

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the practitioner, who will be guided by the appearance of the tongue and the progress the case is making; also to further dilute the dressing if necessary. . . . . I always order some extra nutritive food, and I find after two or three dressings there will be a great improvement in the animal's feeding; the tongue will be hardened, and the abnormal sensitiveness destroyed."* A cure cannot be effected in a very short space of time, and patience is necessary to carry out the treatment effectively. When the organ is extensively involved, and treatment is nevertheless determined upon, it is advisable to make more or less deep incisions in the indurated portions, and apply the caustic agent to these, so as to reach the deeper-seated fungus nodules. Excision of a portion of the tongue may even be advantageously resorted to, if the animal is to be fed on soft food, with the intention of its being consigned to the butcher.

When the Actinomykomata are situated in the mouth or pharynx, they may be removed by the knife, écraseur, or even the fingers alone, the gag being employed to protect the hand and render the operation easier. Meyer, a veterinary surgeon at Neuhaus, in Germany, has, in the course of twelve years' practice, operated in more than 300 cases of pharyngeal tumours, or so-called Lymphomata. He only employed his hand, passing it into the pharynx, seizing the growth, and removing it by twisting, tearing, and scraping with the finger nail. I am informed that Mr. Wyer, M.R.C.V.S., of Donington, Lincolnshire (where such tumours are frequent), has also been very successful in this operation. He had the animal thrown down, inserted a mouth dilator between the jaws, which were maintained as wide apart as possible; then, with a short-bladed knife he made a vertical incision through the soft palate, to allow more room for the introduction of his hand into the pharynx, in order to tear away the tumours. The hæmorrhage was never serious, and the only danger was the tumefaction which ensued in a few instances.

In some cases, either before or after operation, tracheotomy may be necessary to ensure success.

* The VETERINARY JOURNAL, Vol. xiv., p. 12.

The Sanitary Importance of Actinomykosis.

The sanitary importance of this disease is so far evident. It is proved that the microphyte which induces it, or which constitutes it, can be successfully transplanted from a diseased to a healthy animal, and produce all the serious and characteristic lesions which mark the natural malady. If artificial, or rather experimental, transmission can be easily and successfully accomplished, there can scarcely be any reason to deny the possibility of accidental transmission ; and though at present there is no direct evidence of this having taken place, either in man or beast, yet this absence of proof may be owing to our ignorance of the nature of the disease, and consequent inability to trace or ascribe its origin to infection.

Now that we are acquainted with its pathology, and especially its etiology, and are in a position to be able to diagnose it in man and animals, we shall doubtless rapidly acquire new facts with regard to it. In the meantime, it is well to bear in mind the important fact—for which we are once more entirely indebted to experimental pathology—that the spores of this fungus, alike destructive to man and beast, may invade the body by a trifling scratch or wound, and there set up such changes as to ultimately cause death. Many such cases may have entered our hospitals and come under the observation of the surgeons, without their true nature being suspected. For, as I have already said, no instance—so far as I am aware—has been recorded as occurring in man in this country, Germany alone furnishing all the cases hitherto recorded; and yet there is only too much evidence to show that it widely prevails among our cattle (probably also among our other domesticated animals), and therefore those who go about such diseased creatures must be exposed to accidental transplantation of the *Actinomyces.*

Addendum.

Since the foregoing paper was written, M. Kaufmann, assistant-teacher of physiology in the Lyons Veterinary School, has published some investigations he has made with regard to the infectiveness of the fungus, *Aspergillus glaucus*, and as the

results of his researches have an important bearing on the subject of micro-pathology, and especially on this of Actinomykosis, I think it will not be amiss to refer to them here.

The microbes and bacterides, it is now fully established, are not the only microscopic agents capable of exercising a pernicious influence on the health of animals and mankind, as other vegetable organisms, and particularly the spores of certain "moulds," possess the same property; and it was to more fully establish this point that Kaufmann undertook his task. In the note which embodies his remarks and conclusions, and which is given in the *Archives Vétérinaires* for Nov. 25th, 1882 (p. 861), he reviews the state of the question up to the moment when he began his experiments: pointing out that in 1869, Grohe and Block produced fatal infection in rabbits, by injecting into their veins the spores of two of the commonest moulds, the *Penicillium glaucum* and *Aspergillus glaucus*. These results, however, were doubted by Cohnheim and Grawitz, who vainly attempted to reproduce them in 1874-75. But at a later period, in 1880, the last of these experimenters succeeded in producing infection with cultivated spores adapted to an alkaline medium.

The experiments which Kaufmann undertook, under the direction of Chauveau, had reference to the *Aspergillus glaucus*, and the results he obtained prove that the spores of this cryptogam are infective without any previous adaptation. The following is the *résumé* he gives of one of his experiments, those which were afterwards instituted in modifying the circumstances, having corroborated the conclusions arrived at from this one:—

"On May 12th, 1880, on damp bread I sowed the spores of *Aspergillus glaucus* procured from the surface of a dried solution of gum Arabic. This cultivation, placed in a water-bath kept at a temperature of 35° Cent., furnished numerous spores in about forty-eight hours. In order to obtain spores in abundance, I made a new cultivation on bread reduced to broth, with an acid reaction, using for this purpose the spores obtained by the preceding cultivation. This second crop, like the first, furnished spores in abundance in about forty-eight hours. I left these cultivations in the bath until May 19th, and on the evening of that day I put a quantity of spores of the second generation

in water enough to make it look slightly turbid. Into the jugular vein of a rabbit (No. 1) I injected one centilitre of this fluid; and into another rabbit (No. 2) two centilitres. During the night of the 23rd-24th, rabbit No. 1 died; while rabbit No. 2 was very ill, turning its head towards the side and foaming at the mouth: it died during the night of the 24th-25th. At the autopsy there were found in both rabbits the typical lesions of infection by moulds, such as Grawitz had described. The kidneys were highly congested in places, and on their surface were a multitude of white nodular points. On section from the periphery towards the hilum, it was noted that each white point on the surface was prolonged towards the medullary surface by a white line Examined microscopically, in all these nodules the mycelium was found to be felted and already undergoing destruction. In rabbit No. 1 the mycelium tubes were yet perfectly recognisable; they were felted and partitioned, and in every respect similar to those figured by Grawitz. In rabbit No. 2, the one that lived a day longer, the mycelia had almost completely disappeared. Some fragments were noticeable which were easily broken up.

"In the liver there were also numerous white points, which contained fragments of mycelia in process of destruction. The lungs showed a small number of white nodules, but no mycelium tubes could be discovered in them, only granules which were doubtless the product of disintegration of the mycelia under the influence of the inflammation its presence provoked in the lung tissue. Similar white points to these were also found beneath the pericardium and in the walls of the stomach.

"In these two rabbits, the spores of *Aspergillus glaucus*, cultivated on bread which had an acid reaction, produced a mortal infection exactly similar to that which Grohe and Block obtained, and also like that induced by Grawitz, with their malignant varieties previously adapted to the character of the blood by gradual cultivations.

"The spores which I injected into the rabbits did not undergo any process of adaptation to enable them to live in the blood; nevertheless, they germinated and vegetated in the organism. Previous adaptation is therefore needless in order to render the spores of *Aspergillus glaucus* infective."

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Kaufmann alludes to the experimental results published by Koch and his assistants, Lœffler and Gaffky, and which are analogous to those obtained by himself. These German investigators believed they had discovered the cause of Grawitz's non-success. Finally, he arrives at the following conclusions :—

1. The *Aspergillus glaucus* grown on bread may produce fatal infection in the rabbit, even in an extremely small dose, 1·10th of a milligramme. Subsequently it was found that 0·05 milligramme of spores was sufficient to kill large rabbits.

2. That its previous adaptation to a liquid and alkaline medium, and to a temperature of 39° Cent. is not requisite to confer infectious properties.

3. That if this adaptation exercises any influence, it can only be accessory and very slight.

4. That the spores exposed to the temperature of the air during nearly six months preserve all their infective activity.

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SWINE FEVER.*

BY W. ALSTON EDGAR, M.R.C.V.S., DARTFORD, KENT.

Introduction.—The subject for our consideration this afternoon commends itself more especially to the notice of the country division of our Society, for the simple reason that most of the large herds of swine exist generally under agricultural conditions. Yet I cannot but feel that those of our members who study pathology principally in town, and consequently have little contact with the porcine race, will nevertheless take an interest in a discussion on "Swine Fever," at least from the scientist's point of view. As it is a malady included under the working of the Contagious Diseases (Animals) Act, it behoves us as scientific and practical veterinarians to be familiar—nay, far more, satiated—with it, in every detail. Forensic medicine, being endowed with no individual chair at our teaching schools, deserves, beyond all other branches of our noble science, especial attention from our medical societies. In it we collide with the medical and legal professions as well as with the public, and not infrequently we have to rub off, in the witness-box, unpleasant corners of difference with brother professionals, because the one or the other has allowed time to efface from memory a once bright recollection of this or any kindred malady.

Structure.—With this brief prelude, I pass on to explain the structure of my paper, which, for convenience and perspicuity, is arranged in three primary divisions, the first of which includes nomenclature, nature, classification, and history; the second, diagnosis, positive and subjunctive; the former embracing habits, semiology, *post-mortem* appearances, and pathological anatomy; the latter enlisting other pathological conditions simulating in some phase the symptoms or lesions of "Swine Fever;" the third concludes with measures, legal, sanitary, suppressive, and preventive. It will be noted that medicinal treatment of diseased animals does not claim consideration, as affected swine must be slaughtered.

Nomenclature.—In Great Britain the disease has received a variety of names—"Typhoid Fever of Swine," "Soldier,"

* Read at the Meeting of the Southern Counties Veterinary Medical Society, on March 30th.

"Purples," "Red Disease," "Swine Plague," "Swine Fever," "Blue Disease," "Infectious Pneumo-enteritis;" in America it has been designated "Swine Pestilence," "Hog Cholera," "Intestinal Fever," and in France "Porcine Scarlatina," "Rouget," etc., and is confounded with Anthracoid affections by several Continental writers. The term "Typhoid," from its supposed resemblance to that disease in man, has been pretty generally discarded, as incorrect and misleading; the same might apply to "Soldier," "Blue Disease," "Purples," and "Red Disease," all of which are provincial terms used indiscriminately when any discoloured condition of the skin exists, and are applied to several simple, non-specific affections. "Swine Plague" is simple and expressive. "Swine Fever," although it cannot claim technicality, appears to be the only correct designation applied in England to the malady. The term "Infectious Pneumo-enteritis" (*Pneumo-enteritis Contagiosa*), given by Dr. Klein, has the advantage of being scientific, yet, unfortunately for the title, the disease will not always conform to it, the "Pneumo" being present in the minority of cases only. "Dermo-enteritis" would be more consistent with the most frequent complications. We may see that it is easy to quibble with existing institutions, but to suggest a remedy *àpropos* is, unfortunately, not a common gift.

Classification.—"Swine Fever" belongs to the Zymotic division, and is a specific exanthematous fever, possessing a bacillus that may be cultivated artificially, the said bacillus or its product probably constituting the essential *materies morbi* of the affection (reference will subsequently be made to this bacillus in dealing with preventive measures); as all the tissues (blood excepted) of the diseased animal, together with the expired air, are more or less charged with morbific matter. The malady is intensely infectious, transmitted and extended with unerring certainty.

Incubative Period.—It possesses a fairly uniform incubative period. Professor Axe, in his experiments, puts the mean at five days, and gives the limits from four to eight days. Dr. Osler, in some accurately conducted experiments, found the "rose-coloured spots" appeared in three of five cases on the

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seventh day; in the fourth case the rash appeared, but the exact time was not noted; in the fifth case no rash appeared throughout the thirty days the pig was kept alive. This point cannot be decided from observations made in an ordinary outbreak, as it is impossible to define the exact date of infection.

History.—Veterinarians cannot claim a very long acquaintance with the malady, although it has been known to breeders and dealers for many years, and has probably existed in a modified form (as records of Animal Plagues will show) as long as the species attacked by it. It requires too much elasticity of thought to believe in the spontaneous origin of even a bacillus, specific or otherwise, they doubtless having been prepared by man's Creator to perform a hidden work for centuries, and it is only by modern microscopy that we have been able to appreciate the gigantic under-currents of nature. We should possess no anxiety that our prophylactic efforts will be crowned with too much success, by removing all disease and abolishing death.

In 1848 Dr. Sutton, of Indiana, gave a graphic description of Hog Cholera, or, as he then called it, Swine Pestilence, and carried out an extensive series of experiments to demonstrate its nature and method of extension, as the scourge was making a terrible sweep of the pigs throughout the principal States of North America.

In 1849 there is a brief record of "Small-pox in Pigs," by the late Mr. Broughton, of Hounslow, which, from the description of the cutaneous lesions, was probably our Swine Fever of to-day, be it or be it not Porcine Variola.

In 1862 large numbers of pigs were dying in many counties of England. Professor Simonds, in examining some animals at the early part of that year, in Berkshire, remarks, "Had never seen anything of the kind before: scarcely knew what he was dealing with."

In the same year a veterinary surgeon in Germany—Schmidt, of Jesberg—gave, in a Continental journal, a brief description of a Swine Plague that had prevailed for years in Germany. He assigned it a *middle* place between Anthrax and other blood diseases (many Continental writers have described this porcine malady as Anthracoid Erysipelas), and remarked that it seemed

to possess a character of Typhus. From his general description, the disease would appear analogous to our Swine Fever. A very large percentage of his cases presented the ecchymotic and vesicular condition of skin; a less number exhibited the pneumonic form, invariably associated with a staggering gait and paralysis; and although the animals gave evidence of great pain on pressure to the abdomen, the *post-mortem* examinations revealed nothing beyond "streak-like" spots of blood, or venous congestion of the peritoneum and intestines; still he remarks the presence of excessive peritoneal fluid; the brain and spinal cord often showed ecchymoses. Schmidt found it a disease peculiar to the pig, he having failed to transmit it to dogs, cats, poultry, and a horse, and the flesh was largely consumed by human beings without evidence of harm (this bears a strong contrast with Anthrax). It occurred as an enzoötic in warm weather, and in sporadic cases in winter attacked all ages and breeds without distinction, with very fatal results.

In 1864 Professor Gamgee reported "Typhoid Fever" existing at Edinburgh, imported from Wolverhampton, and communicated the fact to Dr. Budd, of Clifton, who, in 1865, made an investigation in a small number of cases imported to Bristol from Ireland, and read in July, before the Royal Agricultural Society, a paper claiming to be the first scientific description of the disease. The principal tendency in this essay was an endeavour to prove the complete analogy of the malady with human Typhoid; but the divergent conditions were not fairly dealt with, consequently Dr. Budd's views have given place to the light of exhaustive subsequent investigations.

A space of ten years was now allowed to elapse, and thousands of swine to perish, before the question was seriously taken up by the profession. In 1875 Professor Axe made a very complete inquiry into the affection, and followed the line of argument taken by Dr. Budd, viz., the Typhoid character of the malady. In 1877 two investigators were at work on the disease, viz., Dr. Klein, to whose punctilious laboratory experiments the profession is deeply indebted for a knowledge of its specific nature; and Dr. Osler, in America, where Hog Cholera had for many years produced terrible ravages and national loss. In the follow-

ing year the southern provinces of Holland were swept over by a virulent enzootic of Hog Cholera. Some further study of the disease has been made in America by Professor Law; and in 1879 the most complete investigation from that continent was furnished by Dr. Voyles.

During the past year, 1882, great losses of swine have been caused in the south-eastern part of France by a disease called "Rouget," which is still undergoing investigation by Pasteur. (This malady is characterized by a cutaneous eruption, and probably resembles Swine Fever and Schmidt's disease in Germany, although its bacillus discovered by Pasteur does not appear morphologically to resemble that isolated by Klein in "Swine Fever.") All breeds and ages are alike attacked by the disease, although young animals suffer a much greater mortality than mature ones. This probably applies to all species attacked by any zymotic.

Diagnosis.—In this, as in all infectious diseases, an early recognition is most desirable; therefore, for the practical surgeon, the subject of diagnosis is most important. We can call to our aid, in forming it, all positive evidence, and this not being sufficiently clear, the negative aspect may be reviewed. We have, in daily practice, frequently to decide if reported cases are really the specific malady, as some pathological conditions may be, and are, mistaken for it, even by the duly qualified, such as some of the following affections: Urticaria, Erysipelas, Erythema produced by *Pulex Immitans*, Parasitic Broncho-pneumonia, Diphtheritis, Septicæmia, Gasto-enteritis, Anthrax, Apoplexy, etc. There is no difficulty in distinguishing a typical case of Swine Fever from any of the foregoing, but I think we shall be agreed that, in all affections, ambiguous and partly developed cases require extra and careful investigation. Our first point is generally to get, as nearly as possible, the history of the animal or herd. I need not enlarge upon the value of such information. The change of habits will next be noted, although this is of no diagnostic value. The affected swine are less vivacious than usual, and do not care to leave their bed when the periodical meal is brought them. If at pasture, the favourite habit of burrowing is abandoned: they lie about

huddled together while the healthy animals are engaged in feeding.

(*To be continued.*)

THOUGHTS ON ENZOOTIC DISEASES.

BY THOMAS GREAVES, F.R.C.V.S.

WHENEVER I feel to be impelled by a strong desire, an overwhelming desire, to take my pen and write an article on any special subject, it is at those times when my earnest attention has just been particularly occupied in the study of the subject, having had to contend with it and investigate it in all its bearings, gravity, and seriousness; and by contemplating it from every point of view—not only the sources whence it emanates, and the removal of various causes, but also the best means of combating it, and so restoring the poor afflicted animal to health. My desire is to record such thoughts as have occurred to me whilst so engaged in the midst of my patients, and entirely without referring to those most excellent works of Fleming on sanitary science. Those works, I assume, are in the possession of, and have been studied by, every veterinary surgeon in the three kingdoms. What I am now doing is a sort of "extra utterance" on the subject, and has two objects. The first is to assist, as far as in me lies, my professional brethren when so engaged, and the second is the luxury of doing good, or thinking that I am doing good.

When a veterinary surgeon is summoned to attend an outbreak of disease—call it by that euphonious name, "Pink-eye," if you like—and finds the number of cases becoming numerous in a few days, some of them assuming serious and complicated forms, it is his bounden duty to cast about, find out the cause, and get it removed as soon as possible. I grant you that it is very important to adopt prompt and proper medical attendance to the poor animal that has become affected, but important as this duty is, it is not a tithe of the importance of finding out the cause and removing it. My first question is, "*Have you exhausted the resources of civilisation?*" If you have not, and limited your

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attention to the medical care of the cases, then I would say you have failed egregiously in the performance of your duty as an efficient veterinary surgeon.

1*st. Have you got Damp, Foul Stables?*—By all means get fires in them at once—fires made of coke, in movable grates. Light them outside the stable; let all the smoke and sulphurous fumes pass away, then carry the grates into the stalls for twenty minutes each. Do this two or three times a week; it will tend to change the character and quality of the air in the stable. Sprinkle quicklime in every stall. I prefer this to any special disinfectant. You can also fumigate each stall by taking a shovelful of hot ashes, not white-hot nor red-hot, and pour upon the ashes a tablespoonful of carbolic acid. A dense, white smoke arises; this kills all germs and poison in the air. If the acid be poured upon the ashes when too hot, an explosion takes place, and a black fume ascends: this is burnt acid, and is of no use whatever. It will be readily understood that, although I may be able by these means to destroy every germ and every particle of poisonous exhalation to-day, and in so far mitigate the virulence of the evil, still the atmosphere in the stable soon becomes charged again to-morrow, from the same source, so long as it is allowed to exist.

2*nd. See to the Ventilation.*—I remember being once taken into a large stable in Manchester, out of which they had had fifteen or twenty of their best horses taken out dead during a period of about three months. Two died that very morning. The ventilation was pointed out to me as being perfect; the stables were very lofty, and high up there was abundance of ventilation. But I remarked, "The horses do not breathe up yonder; they are breathing here within two feet of the floor, and here it is like inside a well. You ought to have an opening here, and here, and here, a foot square, on the ground surface, for ingress of fresh air, and the highest point for egress of heated, foul air." These alterations were made that very day, and fires burnt; and, strange to say, not another horse died or was attacked with the disease. The above cases occurred fifteen or twenty years ago, and were true cases of what would now be called Pink-eye. Some of them had closed eyes and bowel

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complications. I had at the time numbers of the same kind of cases in other large establishments, but very few were fatal.

3*rd. Stable Drainage.*—This is a matter of immense importance in large stables, where the drains have been laid twenty, thirty, or forty years. There can be no doubt whatever that there must be various accumulations festering and rotting, giving off intensely disagreeable and poisonous exhalations. We may call these disease-germs. They are constantly ascending, day and night; and in a close, badly-ventilated stable this foul air becomes unbearable. But the poor horses are forced to live in it and sleep in it continually for weeks and months, until the constitution has imbibed so much of it, and the blood has become so much deteriorated, that if a season of intense cold intervenes, and these horses get starved and chilled, they very probably take a cold, or become affected with Influenza. They may die like rotten sheep. This is called "Pink-eye." The lungs soon break up, stinking breath and death is almost certain speedily to take place. At one of the largest establishments the drains had been down many years. We were never free from cases of chest Influenza of a typhoid character for twenty years. I have been urging that these drains should be taken up and surface-drainage adopted. The company had four of their stables done about six months ago—that is, the whole of the pavement was taken up, the drains taken up, and every portion of dirt and rotting accumulations thoroughly removed, and the drains filled up with good gravel. The men, while doing this work, had to have handkerchiefs over their mouths and nostrils, and go to the door every five minutes for fresh air, so strong was the stench. The whole extent of the stable had a 14-inch thickness of concrete; then the pavement was laid with proper fall, then asphalte run in between every set, making it everywhere impervious to water. Since then we have had eighty to one hundred cases of chest Influenza from the adjoining stables, but not a single case out of these four stables. I have known and heard of other large establishments which were complete hotbeds of Influenza for a long time; but after drains had been taken up and surface-drainage adopted, Influenza became a disease quite unheard of.

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4th. Treatment of these Disorders.—It has fallen to my lot to visit several large towns to see some hundreds of cases which had been designated "Pink-eye." I found in some places one-third of their entire stock had been swept off. In other places their entire stock had been carried off. I have heard veterinary surgeons say they all die which are attacked in a few days. I examined all the cases with great care, especially with regard to the nature and history. The conclusion I have arrived at is, that it is nothing more or less than Influenza, pure and simple; it has nothing of a special character about it. I entirely confirm the opinion expressed by Professor Simonds on this point. We have these cases to contend with in Manchester continuously, more or less, in one establishment or another. We are never free. But I venture to assert that our losses on the average are not more than two per cent. I find it is the custom in some towns to have the patient's legs bandaged up to the knees and hocks with hay or straw bandages, notwithstanding their feet are burning hot, and the legs very tender from œdema. Remove the bandages, and you find indentations you could lay your fingers in, made by the bandages. This has, no doubt, been the cause of great pain and suffering, has aggravated the case, and is very objectionable. There is not sufficient care taken in keeping the entire surface of the body of a proper heat; the ears in almost every case are as cold as marble. It would appear that little or no importance is attached to this particular. I, on the other hand, attach very great importance to it. *No patient is going on favourably if his ears continue deathly cold.* We know that the ears may be frequently pulled, and as often go cold again. You may put a good thick hood on, even a second and a third, and still the ears will be as cold as a stone. Now, I never use hoods, and never have cold ears. I have a horse-cloth, or a good thick sack stitched round the patient's neck, and supply the attendant at every place with our ear liniment. He drops six or eight drops on to the palm of his hand, rubs his hands together, and then rubs the ends of the ears well between his hands; the ears will then keep hot for three or four days. Now let us consider for a moment what this simple treatment effects. It causes a greater determination of blood to the head and on the brain,

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enabling that vital organ to perform its functions with more vigour. The patient is always more cheerful. Again, in giving a drink, I find it is the custom with some practitioners to give a horse a drink with a twitch on his nose, and hold his head up by it. This custom, I consider, cannot be too strongly reprobated. In the first place, it maddens and punishes the patient, causes him to be stupid and stubborn, and almost unconscious. He will hold the drink in his mouth, and gurgle it a long time ; and if he happens to have a sore throat, there is nothing more likely than he will get some of the drink (if only a teaspoonful) passed down the treachea into the lungs. This done a time or two a day will cause fatal consequences in two or three days certain. I avoid giving balls or drinks in all cases of sore throat. Give medicine in the water he drinks, stimulate and poultice the throat, and steam his head, but not in a bag ; and put cloths wrung out of hot water round his chest. If the breathing be much accelerated, I often take a shovelful of hot ashes into the loose box, and sprinkle upon it a tablespoonful of powdered nitrate of potasse. The fumes from this have a clear avenue into the lungs, and come direct into actual contact with the diseased lung-tissues. I know no better sedative—if, in fact, we have any that has the effect of causing subsidence of tumefaction and disease in the lungs. The practitioner should never miss making a *post-mortem* examination. It will teach him more than anything ; besides, it will show him the exact state it was in when dying, and the stages the disease had passed through. If the disease has progressed into the third stage, as it will sometimes do insidiously, in spite of the most careful treatment, the pulse and breathing in some cases will not be much accelerated, sticks to his eating ; but if we have the rusty, broncho-pneumonic discharge, the grey hepatisation has taken place, and disintegration of lung-tissue set in. Could our patient expectorate freely, as man does, we could save the majority of these cases ; but that not being the case, vomicæ results, and no kind of treatment will avail. Or, if the disease has assumed the other alternative, Hydrothorax, and our patient die, in the ordinary course of things he will arrive at this point usually in about three weeks—sooner if the disease has been driven on at express speed by violent counter-irritation.

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5th. Employment of Medicaments.—I find some practitioners administer ingredients which, I am convinced, have a most pernicious effect upon the horse; for instance, they give spirit of nitrous ether, tincture opii, tincture pimento, etc., which are made from methylic spirit. I have a strong conviction that this is a grave mistake, as it contains wood naphtha, which I look upon as a slow poison in the horse. Once I was induced to use it for a time. I had twelve cases in one stable and numbers of others in other stables, that had half-ounce doses of spirit nitrous ether and half-ounce doses of tincture pimento given twice a day. My patients made no progress; they had the best possible nursing and attention; pulses ranging from 64 to 96; day after day they were stationary or retrograding, loathing all food, and looking like poisoned rats. It flashed across my mind, "Some ingredient I am giving is at the bottom of this." I at once discontinued its use, and used none but what was made from pure rectified spirit, and after the second dose they were all better. They rapidly improved, and all recovered. It seemed to regulate weak or disturbed nervous power, clear the head, and assist the appetite.

"PINK-EYE."

BY THOMAS W. CAVE, M.R.C.V.S., NOTTINGHAM.

HAVING had, during the last few months, ample opportunity of studying the symptoms and course of the disease commonly known as "Pink-eye," which has been so exceedingly prevalent in various parts of the country, it will not, perhaps, be out of place to record the results of my observations for the benefit of those who have not as yet become practically acquainted with it The first outbreak of this epizootic which came under my notice in Nottingham, commenced in January, 1882, and, as far as my experience went, was rather extensive, the disease raging in various parts of the town for three or four months.

The second outbreak commenced in the first week of January last, and the disease has continued up to the present time,

although its spread was markedly checked by the cold, frosty weather of the middle and end of March.

The disease is evidently a specific fever of a highly contagious and infectious nature. It has a distinct period of incubation, of probably two or three days' duration. I have fixed this time from the fact that when the first symptom, *i.e.*, the loss of appetite, is noticed, the temperature usually ranges from 103° to 105° F., and I have found that the loss of appetite occurs on the fifth day from the time of infection; so that the first elevation of temperature would probably occur about the third day after infection.

Accompanying the loss of appetite, other symptoms are noticeable; disinclination to move when brought from the stable, cracking of the joints of the extremities, frequent changes of posture, first one leg being rested and then another. The pulse at this period ranges from 40 to 60. Respiration normal, temperature 103° to 105·8°. It will probably be found that the horse has not lain down during the previous night. For the next five days from the first loss of appetite, no other symptoms beyond those I have mentioned above are noticeable, except, in some cases, swelling of the legs; but during this period the pulse is increased in frequency, ranging from 60 to 80, the temperature rises in some instances to 106°. Respirations still remain normal, or but slightly increased; the inappetence is continued. The œdematous condition of the extremities may or may not occur, but is usually more prevalent in cart-horses. On the fifth day, still dating from the loss of appetite, the eyes are first noticed to be affected, at first appearing weak and unable to bear any sudden access of light, and overflowing with tears; the conjunctiva now becomes inflamed, and assumes a deep red colour, and has a sodden and swollen appearance; the eyelids become tumefied, and the palpebral fissure is partially or wholly closed. One or both eyes may be affected; if both, one more severely than the other. As soon as the eyes show these characteristic symptoms, a marked change takes place in the general condition of the patient; the temperature rapidly falling, often to the extent of three or four degrees in the twelve hours; the pulse becomes less frequent; the appetite returns, and the animal

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lies down for the first time since the commencement of the disease.

In ordinary cases the patient now soon becomes convalescent, the eyes rapidly resuming their natural appearance, and the temperature and pulse becoming normal in two or three days.

From these facts it would seem that the crisis of the fever is reached at the tenth day from infection, and the fifth from loss of appetite; and that the poison is eliminated from the system through the mucous membranes generally; for in some cases this process of elimination appears to cause severe diarrhœa, which, accompanied by flatulency and abdominal pain, commences when the eyes become affected, the mucous membrane of the bowels probably being congested, and in a similar condition to that of the conjunctiva. In all cases, at this stage, there is a decided tendency to laxity of the bowels, and great care must therefore be taken in dieting.

These observations were made more particularly on those cases which were in our infirmary, and therefore continually under my own care; and I found it easy to foretell correctly the exact date when the eyes would first become affected.

I take these as typical cases, in which the disease runs its natural course without being aggravated by further complications.

In more severe cases the eyelids remain swollen for several days, the deep red colour of the conjunctiva only gradually subsiding, and the appetite slowly returning. In some cases lung complications were present, but only in those in which the debility was excessive, and to which, in my opinion, they were due, the lungs being only passively congested, and not the seat of active inflammatory action. In a few instances partial loss of power in the hind extremities was noticed. Then, again, an intermittent pulse was frequently present during convalescence.

When the animal is aged and in a poor, worn-out condition prior to becoming affected, the diarrhœa and the lung complications are likely to prove fatal; but in general, when the animal is in a fair condition, the disease is unlikely to be so, except through neglect and want of proper treatment, or through

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continuance at work too long after the first symptoms have appeared.

It is interesting to note, that although a large number of cases came under my notice during the early part of 1882, not one of these, as far as I know, were affected again during the recent outbreak; and also that the disease appeared to be decidedly more severe this year than last.

It is also certain that isolation is effectual in stopping the spread of the disease, if carried out immediately the first symptoms are seen; several instances having occurred in my own experience in which, by early removal of the affected animals, the rest of the stud escaped.

Of the *post-mortem* appearances, I am happily unable to speak, except in one case, where the animal was aged and worn out, and obstinate diarrhœa and abdominal pain set in, which rapidly proved fatal to the patient, already greatly debilitated. On *post-mortem* examination, I found the mucous membrane of the large bowels congested throughout, and also congestion of the lungs.

The treatment I have adopted, has been frequent exhibition of diffusible stimulants in small doses, salines in the drinking water, and in those cases in which the debility was excessive small repeated doses of alcohol. After the febrile stage is over, I found the use of vegetable and mineral tonics specially valuable, more particularly Quiniæ sulph., *et* Liq. ferri dialysat. In cases complicated with diarrhœa and abdominal pain, in which alteration of diet was not sufficient, I have given small doses of Pulv. opii., with port wine and arrowroot.

In conclusion, I may say I have not found that the disease presents any great difficulties where the cases are seen in the early stages, and provided the animal is in fair condition; and also that isolation at the commencement is specially successful in stopping the spread of the disease.

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ON AN INFECTIOUS ULCERATIVE DISEASE OF SKIN AND MUCOUS MEMBRANE CAUSED BY A SPECIFIC BACILLUS.

BY ALFRED LINGARD, M.R.C.S., AND ERNEST E. BATT, M.R.C.V.S.

A DISEASE of the above character having yearly caused considerable ravages among young cattle in this country, portions of the affected organs were received by us at the Brown Institution for examination.

The following are a few points we wish to make known prior to the completion of the research, which is so far advanced that it will shortly be published in full:—The tongue and mucous membrane of the cheeks are the usual localities of the primary lesion. The typical ulcer in advanced cases consists of a sore with free overhanging edges. On section through the sore, the tongue is found to be necrosed to a considerable depth opposite all parts of the ulcer. Wherever the sore touches any other part of the mouth or cheek, the disease is communicated and rapidly spreads. In some cases similar necrotic changes had taken place in the lungs. The line of junction of the necrotic with the healthy tissues was found to be occupied by a mass of bacilli having the appearance of a dense phalanx advancing upon the healthy tissues. The disease has been proved capable of transmission by the bacilli in question, which are equally numerous and virulent after passing through several generations by inoculation.

RHEUMATIC ARTHRITIS IN LAMBS.

BY J. B. GRESSWELL, M.R.C.V.S., LOUTH.

SO many severe outbreaks of a rheumatic character have occurred during the past six or seven weeks among the lambs in North Lincolnshire, that some observations as to the symptoms, nature, and treatment adopted may prove of interest to the readers of the VETERINARY JOURNAL.

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The disease especially attacks young lambs varying in age from two to four weeks old. During the past few weeks, no less than 800 or 900 cases have come under my notice. In some instances the disease has manifested itself in a mild form, while in other cases it has been of a very severe character. Indeed, on one particular farmstead forty lambs died before any advice was sought for, and forty more succumbed during the following week.

The disease assumed its worst form on the tops of the Wolds; but outbreaks of a serious nature have also occurred in the marshy districts.

Firstly, with regard to the food. The ewes have been fed upon various diets. In some cases they had been allowed ¾lb. of linseed cake per day, in addition to swede turnips. In other cases they had no cake, but only mangel-wurzels or swedes. A few had been allowed half a quartern of oats per day.

Some of the fields lay in sheltered parts, others were more exposed. In many cases, shelter was provided for the sheep, but in others no such provision was made.

Secondly, with regard to the symptoms.

The affected lambs at first separate from the rest. They appeared dull and dejected, and moved with difficulty and unsteady gait. The pulse was hard and quick, small in volume in some; it was irregular and intermittent in others. The temperature in those cases in which it was taken, varied from 104° to 107·5° Fahr.

The joints, more especially the knees and hock joints, were extremely hot, tender, and painful. In many cases there was a discharge from the eyes and nostrils, in some cases from the eyes only. The lambs refused to suck and lay about the fields in the most sheltered spots, utterly helpless. The tongues were hot and dry, and in many cases of a purplish hue. The bowels were constipated, and the urine dark in colour.

Many of the animals died in this pyrexial state; some seemed to partially recover, moved somewhat more easily, and commenced to suck again. But this partial recovery was not always permanent, for in some cases the joints, sometimes both knees and hocks, sometimes only one joint, began to enlarge very rapidly,

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and the pulse again to rise. The swellings varied in size from that of a hen's egg to that of a small orange.

The effusion sometimes discharged itself spontaneously, while in other instances it firstly became still more copious, and then was finally absorbed.

Thirdly, as to the pathological changes found after death. The autopsies made revealed signs of general pyrexia.

The heart and lungs were not as a rule affected. The knee and hock joints showed signs of acute synovitis. When cut into, a large amount of greenish-yellow purulent matter escaped. The cartilages of the joints were roughened, and in some instances eroded. The ends of the bones were, in two instances, exposed.

And now a few remarks as to the nature and cause of this affection. I feel no doubt that it is acute Rheumatism, and that it is caused by an acid condition of the ewes' milk. As an additional cause, may be mentioned the extreme cold to which both the ewes and lambs have been exposed. We cannot assign the nature of the food or the locality as causes, as in each case they varied.

Finally, with regard to the treatment. To the ewes, Bicarbonate of Potassium and vegetable tonics were administered. To the lambs in the early stages, small doses of Sodium Salicylate internally were given in a tea-spoonful of water, and soap liniment was applied, with friction, externally. In the later stage, the Bicarbonate of Soda was administered, and externally painting the joints with tincture of Iodine.

Editorial.

PROTECTIVE INOCULATION FOR ANTHRAX.

THE great importance which attaches to the discovery of protection from virulent maladies by inoculation with their attenuated or modified Virus, and the doubts which have been raised in some quarters as to whether this protection is really conferred, will doubtless form the subject of very extensive investigation and practical demonstration before many years have elapsed. Already this protection has been most largely invoked in the disease known as Anthrax, the operation which has been designated "Anthrax vaccination" having been resorted to on a very wide scale in different parts of the Continent, but particularly in France, where no fewer than eighty-five thousand animals have been so inoculated within a year, in order to preserve them from the attacks of this deadly scourge, in one portion of that country only. The startling efficacy of this protective inoculation having been demonstrated by Pasteur and his assistants at Pouilly-le-Fort and in Chartres, to veterinary surgeons, agriculturists, physicians, and others, the measure soon became popularised, and to such an extent that in the department of Eure-et-Loir alone, where the disease is most destructive, about 80,000 sheep, 4,000 to 5,000 cattle, and 500 horses were operated upon by the departmental veterinary surgeons in 1882. The results of the year's work have been looked forward to with some anxiety, and the Veterinary and Agricultural Society of Chartres has endeavoured to satisfy the desire for information by collecting statistics up to October last, and publishing them under the direction of M. Boutet, veterinary surgeon of that town. The report is somewhat lengthy and detailed, but very instructive, and it shows that during the year there were inoculated 79,392 sheep. For ten years the annual average loss among the flocks from Anthrax was 7,237, or 9·01 per cent. Since the adoption of inoculation only 518 sheep, or 0·65 per cent., had died. But it is noted that the mortality from the malady is always most severe during dry, warm years, and as the past year was rather wet, it is probable that the mortality would not have been more than three per cent. So that the loss, if inoculation had not been adopted, would have been 2,382, instead of 518. All the flocks were not inoculated: 2,308 having been operated upon, and 1,659 allowed to remain unprotected. The mortality among the inoculated was eight, or 0·4 per cent.; while among the unprotected it was sixty, or 3.9 per cent. Both the inoculated and the non-inoculated were exposed to the same influences of soil, shelter, food, temperature, etc.

The veterinary surgeons of Eure-et-Loir inoculated 4,562 cattle in the course of the year. Among these animals the loss had been annually 322; but since the adoption of inoculation it was only eleven: so that instead of being 7·03 per cent., it was only 0·24 per cent.

In consequence of the secondary, though not serious, tumefaction occurring in horses after inoculation, as well as the lesser mortality among this species from Anthrax, the operation was very limited, only 524

animals having been submitted to it, two of which died between the first and second inoculations.

The report terminates by stating: "These results appear to us convincing; in the presence of such figures there can no longer be any doubt as to the efficacy of Anthrax vaccination. If the farmers of Beauce understand their own interests, the anthracoid affections will soon be only a *souvenir;* for Anthrax, Splenic Apoplexy, and Malignant Pustule are never spontaneous, and in preventing the mortality among their cattle by vaccination, they destroy all the causes of propagation of Anthrax, and consequently they will in a few years cause this redoubtable affection to disappear from Beauce."

This report must be considered as very satisfactory; inasmuch as it deals with the figures after the most dangerous season had been passed, and therefore affords, in addition, some idea as to the duration of immunity after inoculation. It will be seen that with the inoculated and non-inoculated, which were mixed and fed together, the mortality was ten times larger among the latter than the former. There is another consideration which should not be lost sight of in estimating the value of protective inoculation, as shown by these statistics. The operation is entirely novel, and it has only been practised for one year in the Anthrax-haunted districts. Mistakes and imperfect inoculations might therefore be calculated upon, and doubtless did occur. In time these will be greatly diminished, as the veterinary surgeons become more expert, and better understand the conditions upon which successful inoculation depends; so that the mortality will be greatly lessened, or altogether *nil*, among the animals which have undergone the operation. In France, towards the end of last year, 13,000 sheep, 3,500 oxen, and twenty horses were inoculated without a single mishap. And that the inoculations were protective may be surmised from the fact, that some time after the operation, twelve of the inoculated sheep were re-inoculated with non-cultivated Anthrax virus with absolute impunity, while the same number of non-protected sheep inoculated with it speedily died. These facts and figures, derived from actual experiment and clinical observations among animals which are naturally liable to Anthrax, and in regions where its attacks are most frequent and deadly, are far more valuable and trustworthy than mere surmises and deductions drawn from two or three experiments performed under unfavourable conditions upon creatures which are not naturally the victims of the malady.

ABSTRACT OF REPORT ON THE RELATION OF MICRO-ORGANISMS TO TUBERCULOSIS.*

BY W. WATSON CHEYNE, M.B., F.R.C.S., ASSISTANT-SURGEON TO KING'S COLLEGE HOSPITAL, ETC.

A VISIT was paid to Professor Toussaint of Toulouse, and to Dr. Koch at Berlin, with a view of seeing their methods of experimentation, and the results which they had obtained. Various experiments were seen, and a

* Presented to the Association for the Advancement of Medicine by Research, on February 1st, 1883.

quantity of material was brought back to England for more detailed examination. The result of the visits and a full account of the observations made will be found in the complete report which will be published in the April number of the *Practitioner*.

It was thought advisable in the first instance to repeat some of the experiments which have led observers, more especially in this country, to object to the view of the specific origin of tuberculosis, and to hold that in rodents, at least, any irritation might produce that disease. The present series of experiments were performed under the best hygienic conditions, with complete isolation of the animals from each other, and thorough disinfection of the instruments employed. In six cases setons of various kinds were introduced —both subcutaneously and into the anterior chamber of the eye; in ten, vaccine lymph, both from the calf and from man, was employed; in three, pyæmic pus was injected—(1) into the eye, (2) subcutaneously, and (3) into the abdominal cavity; and in six, various materials (cork, tubercle hardened in alcohol, and worsted thread) were introduced into the abdominal cavity. None of these twenty-five animals became tuberculous. Some experiments are also cited in the report, in which wounds in rodents have been stitched up with cotton thread, and others in which abscesses have been produced in various ways; but in none of these cases did tuberculosis ensue. In explanation of the former results, it is pointed out that at the time the early experiments on this subject were made the communicability of tubercle by mediate contagion was not recognised; and as the precautions necessary for thorough disinfection of instruments, etc., had not at that time been made out, the channels for the introduction of specific micro-organisms were left unguarded.

Two tubes of serum containing micrococci were obtained from M. Toussaint, who holds that micrococci are the cause of the disease. Toussaint obtains these organisms by inoculation of flasks containing serum, or infusion of rabbit, with the blood of tuberculous animals; and he has in some cases succeeded in producing tuberculosis by the injection of these cultivations into other animals. The material obtained from M. Toussaint was injected into three rabbits, two guinea-pigs, one cat, and one mouse; and of these seven animals, six were under observation for a sufficient length of time for the development, at least, of local tuberculosis. In no instance did tuberculosis occur. (In all the experiments detailed in this report inoculation was made into the anterior chamber of the eye, whenever this was practicable. Syringes, purified by heat, were employed for the purpose.) Cultivation of these micrococci were also made, and injected into nine rabbits and three guinea-pigs. Of these, four rabbits and three guinea-pigs were under observation for a considerable time without the development of tuberculosis in any case. The total result is that thirteen animals were inoculated with the micrococci with which Toussaint works, and obtained from Toussaint himself; and in no case did tuberculosis occur.

A number of tuberculous organs from animals experimented on by M. Toussaint were also obtained, some of the animals having become tuberculous after the injection of his micrococcal fluid. Careful examination of these organs has shown the presence—often in large numbers—of the tubercle-bacillus described by Dr. Koch, but no micrococci were found. The conclusion arrived at is that the micrococci described by Professor Toussaint are not the cause of tuberculosis. One of the possible explanations of the results, which should not be left out of account, is the following:—Professor Toussaint trusts greatly to carbolic acid as a disinfecting agent for the purification of the instruments employed in inoculation. This antiseptic, though effectual for the destruction of the ordinary forms of micro-organisms, as evidenced by the satisfactory results obtained from its use in

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aseptic surgery, has been shown to be ineffectual against the spores of bacilli, unless it acts for a long time. The bacillus of tubercle apparently produces spores, and there is no reason to suppose that these are less resistant than those of *Bacillus anthracis*, and other bacilli. An experiment is given which shows that a saturated watery solution of carbolic acid, even though it acts as long as fifteen minutes, is not sufficient to arrest the development of the tubercle-bacilli. Therefore to wash a syringe with carbolic acid is not such a certain means of disinfection in this particular instance as was formerly supposed.

Experiments were also made with cultivations of bacilli obtained from Dr. Koch. Twelve animals were inoculated with these organisms, chiefly into the anterior chamber of the eye, and all of them became tuberculous, and that more rapidly than after inoculation of tuberculous tissue. The tubercles produced in these cases were infective, and caused tuberculosis in other animals. On examination of tuberculous material, Koch's tubercle-bacilli are always found, though in varying numbers. They are most numerous in bovine tuberculosis, and least numerous in human tuberculosis. About eighty organs of tuberculous animals, and thirty-six cases of human tuberculosis were examined, and in all of these, without exception, tubercle-bacilli were found. The inoculation of these bacilli is more certain and more rapid in its effect than the inoculation of tuberculous material from any source ; and this seems only explicable on the supposition that in the cultivation of these bacilli the virus of the disease is present in a more or less pure state, and in large amount. Various facts are pointed out, leading to the conclusion that in these bacilli we have the virus of the acute tuberculosis caused in the lower animals by the inoculation of tuberculous material.

In applying the facts obtained from experiments on animals to the pathology of tuberculous diseases in man, it is pointed out that all that has as yet been absolutely proved is that a variety of materials in man which we class together as tuberculosis produce acute tuberculosis when inoculated into rabbits, guinea-pigs, and other animals, and that this result is due only to the tubercle-bacilli present in the materials inoculated. It therefore remains for inquiry what relation these bacilli bear to the morbid processes in man in which they are found.

Acute miliary tuberculosis in man resembles in every respect—in histological structure, in tendencies, and in the presence of bacilli—the disease produced in the lower animals by the inoculation of tuberculous material, and there can be little doubt that the cause of both diseases is the same, viz., the tubercle-bacillus. It is, however, much more difficult to understand the relation of these organisms to the localised tuberculous processes in man (phthisis, scrofulous diseases of glands, joints, etc.). Phthisis is alone considered in the present report, and with a view of making clear the conception which the author has formed as to the relation of bacilli to this disease, the following facts are brought forward, which he has observed as to the mode of distribution of these organisms in the tissue, and their relation to its histological elements.

Two distinct structures have been described as tubercles in the lungs of rodents, viz., nodules of lymphatic tissue in close proximity to the vessels and bronchi, and nodules which are largely made up of epithelioid cells. If a case of commencing artificial tuberculosis be examined, it will be found that bacilli are only present in the latter nodules ; indeed, it is rare even in the later stages to find them in the former, and in that case epithelioid cells will be found as well. The bacillus being the cause of the disease, the nodules containing epithelioid cells are alone tubercles. Further, on careful investigation of these nodules, it will be found that bacilli are only present in the epithelioid cells themselves. In making this statement, only young tubercles, and those in which the bacilli are present in moderate numbers, are referred

to. Where there are enormous masses of bacilli, or where there has been confluence of tubercles, forming a largish tubercular deposit, some bacilli may be found in the outer part of the tubercle ; but the great majority of them occupy the epithelioid tissue. Where the bacilli are few in number, one need only look for them in epithelioid cells. Around the epithelioid cells the tissue becomes inflamed, and converted, more or less completely, into granulation tissue. As the tubercle becomes older, the epithelioid cells at the centre undergo caseous degeneration, and in this case the bacilli are present in the caseous mass, but are often best seen at its margin, where epithelioid cells still exist, and they may also be found penetrating nto the inflammatory tissue. The giant-cells of tubercle can be distinctly traced as originating from epithelioid cells, especially from epithelioid cells containing the bacilli. As to the origin of these epithelioid cells in the lung, the great majority are undoubtedly derived from the alveolar epithelium. The bacilli escape from the blood-vessels or lymphatics, and pass into the alveolar epithelium, where they grow, and cause multiplication of the epithelial cells until the alveolus becomes completely filled with them. In some instances, however, these cells are probably derived from the endothelium of blood and lymphatic vessels. In the case of the liver, the author thinks that they are frequently developed from liver cells; for the bacilli may be found in liver cells at the margin of commencing tubercles, and gradations in size and form can be traced between these liver cells and the epithelioid cells in the centre of the tubercle. The accumulation of the epithelium in the centre of the nodule leads to obliteration of the vessels around, and to fusion of neighbouring nodules.

With regard to phthisis, the two extremes, the rapid phthisis, or caseous pneumonia, and the chronic or fibroid phthisis, are considered. In the rapid phthisis the alveoli are distended with caseous material, or, in parts where the process is less advanced, with epithelioid cells. Surrounding these the trabeculæ are thickened and converted into granulation tissue. Here the bacilli are found in moderate or considerable numbers in the caseous material and epithelioid cells, which fill the alveoli. By-and-by the walls of adjacent alveoli disappear, and thus irregular cavities are formed, containing caseous material, surrounded by epithelioid cells and inflammatory tissue. In this the bacilli are most numerous, and sometimes in enormous masses at the free margin of the cheesy material ; and they are also present, though not generally so numerous, in the epithelioid cells at the line of junction of the caseous mass with the surrounding tissue.

In fibroid phthisis the bacilli are, as a rule, extremely few ; but here and there, if a cavity exist, or in the centre of a caseous mass, one may find them in considerable numbers. They may, though very rarely, be also found in the giant-cells, which are generally pretty numerous among the fibrous tissue. As a rule, however, the bacilli are extremely few, but, nevertheless, if a sufficient number of sections be carefully examined, a few will be found here and there at the margin of or in the caseous masses.

The foregoing facts seem to indicate that when the tubercle-bacilli reach the alveolus of a lung, which is in a suitable condition for their growth, they develop in the epithelial cells lining the alveolus. This alveolus becomes filled with cells, neighbouring alveoli become affected, and the same process goes on in them. The further result will depend on the number and growth of the bacilli, and on whether the patient is a good soil for their development. If they develop well, we have caseous pneumonia ; if they grow slowly and with difficulty, we have fibroid phthisis. In the former case the alveoli become distended early with epithelioid cells, inflammation of the walls of the alveoli ensues, the epithelioid cells soon undergo caseous degeneration, and the pressure of the masses leads to atrophy or sloughing of the walls of the alveoli. Infection of neighbouring parts of the lung occurs both by continuity

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and also by partial coughing-up and re-inhalation of the bacilli into other parts of the lung. In this rapid phthisis fibrous formation around the alveoli only takes place imperfectly, and the lung rapidly breaks down.

In the case of fibroid phthisis the bacilli are few and grow only with difficulty. Thus fibrous formation occurs extensively, and giant-cells are entangled in this fibrous tissue. In parts, however, the process may be more rapid, and there cheesy masses are formed, which may lead to breaking down of the lung and the formation of cavities.

In the report it is pointed out that on this view we have one explanation of the rarity of acute tuberculosis in connection with phthisis, and of the presence of bacilli in sputum even before physical signs are marked; while it is shown that this view is directly corroborated by the results obtained by Tappeiner in his inhalation experiments. Against the statement that phthisis is due to the tubercle-bacilli might be urged the fact that the bacilli found in the lung after death are often very few in number. Among other facts brought forward with regard to this question, it is stated that very extensive tuberculous processes may be found in animals containing only few bacilli, and that in cases where bacilli alone were inoculated, and where it is certain that the bacillus was the only agent at work. With regard to the production of phthisis by the inhalation of dust of various kinds, it is pointed out that the foreign particles inhaled probably only prepare the lung for the reception of the bacilli, for in those cases also bacilli are found. It has often been urged that the milk of tuberculous cows is infective. This may be the case when the mammary glands become tuberculous, and the mode in which the bacilli might get into the milk was well illustrated by the appearances found in a tuberculous kidney. There not only were bacilli present in the tubercular mass, but they were also found in large numbers in the epithelium of the kidney tubules, and in the interior of those tubules, both in the vicinity of the mass and at some distance from it. The author has not yet investigated the subject of tuberculosis of the kidney, but from what he has seen he thinks it probable that the epithelium of the tubules is the favourite seat of the bacilli in the kidney, just as the alveolar epithelium is in the lung. In that case bacilli would be present in the urine, not merely when there were marked tuberculous masses in the kidney, but also when the disease was but slightly advanced. From analogy, it is probable that the same is the case in the mammary glands, and bacilli might be present in the milk, even though the disease of the gland was not sufficiently advanced to be noticeable.

The staining solution employed was the Weigert-Ehrlich solution. The formula is: Of a saturated watery solution of anilin, 100 parts; of a saturated alcoholic solution of the basic anilin dye (methyl violet, gentian violet, fuchsin, etc.), eleven parts. Mix and filter before use. Rapid staining is obtained by warming the solution. The specimens are then decolourised by immersion in nitric acid (one part to two of water), and stained in a suitable contrast dye. Very delicate sections are apt to be injured by immersion in the nitric acid. In this case, after staining them in the Weigert-Ehrlich fuchsin solution, they may be washed in distilled water, immersed in alcohol for a moment, and then placed in the following contrast stain for one to two hours:—Distilled water, 100 cubic centimetres; saturated alcoholic solution of methylen-blue, 20 cubic centimetres; formic acid, 10 minims. Wherever it is possible, however, Ehrlich's original method is recommended as being most rapid, most simple, and most satisfactory. By this method of staining, tubercle-bacilli and leprosy bacilli remain red when the fuchsin solution is employed. Psorospermiæ and the outer coat of some parasites also retain the red colour. Lichtheim has further stated that a micrococus is frequently found in the fæces, which behaves in a similar manner to the tubercle-bacillus.

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THE COMPARATIVE PHYSIOLOGY OF MENSTRUATION.

BY ALFRED WILTSHIRE, M.D., F.R.C.P. LOND.

(*Continued from p.* 264.)

The influence of domestication upon the fertility of animals amenable thereto is most instructive. The total productiveness of most of them is enormously increased thereby. The continuous and regular supply of food, the artificial warmth, selection, care, and culture bestowed upon them, greatly enhance their productiveness. Puberty not only arrives earlier, but a sustained power of reproduction is acquired ; more offspring can be bred, and these again breed earlier. The manifestations of "heat," therefore, instead of being confined to seasonal appearances, are much more frequently renewed, resembling, be it noted, those of women ; and where celibacy is imposed upon the female, as it is for commercial purposes in the case of cows, for example, by segregation from the male, the periods of heat may be observed to recur with remarkable regularity—in cows, usually every three weeks. Domesticity, then, increases the fertility of domesticable creatures ; while seclusion from the male, either for economic purposes or through captivity, permits the repeated exhibition in the female of the phenomena of the rut or heat, whatever they may be.

Prolonged civilisation has done for women what domestication has done for the lower animals ; it has augmented their power of reproduction, made them more prolific, and rendered more frequent the manifestations of that aptitude, hence the sustained repetitions of œstro-menstruation. Darwin (*Descent of Man*, p. 45) has remarked that savages appear to be less prolific than civilised people. Bischoff has truly said :—"If women menstruated only once or twice a year, it would long since have been remarked that such was the only time when conception was possible ; menstruation would long ago have been recognised as perfectly analogous to 'the heat' in animals, even though the most essential element of it, the maturation of ova, had not been discovered." He also says : "The ova form and become mature, and are extruded from the maternal organism, usually at fixed periods, having regularly recurring intervals." This is the period of "heat" in animals and "menstruation" in human females. The analogies existing between menstruation in women and œstruation in the lower animals may be shown. In both there is special aptitude for conception at or near these times, though women are more highly endowed, inasmuch as they may conceive at epochs somewhat remote from their "period." The lower females will rarely permit intercourse except at periods of heat, which in ruminants, at any rate, are of brief duration ; indeed, the males seldom attempt it during the intervals. This is unlike the practice of human beings. In both, it has been shown the germ-cells are then ready for impregnation ; though here again woman enjoys the advantage implied above, in that ovules may be produced at times other than those of the "heat," that, however, being admittedly the usual and ordinary epoch for their ripening and dehiscence. Propinquity to the male, without access to him, is known to hasten ovulation in birds ; and in the human female repeated sexual indulgence is known to stimulate the rupture, if no more, of Graafian follicles. One should not lose sight, however, of the superior evolution of the sexual system in the higher creatures, for this may not be without influence upon the process. It can hardly be maintained that sustained ovulation is the exclusive appanage of the higher mammals, but there can be little doubt that the organic superiority of the highest enables them to co-ordinate more readily the advantages their endowments and environments may chance to afford : their sexual superiority is correlated with their mental, as with their general organic superiority.

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Bischoff says :—"In them (animals), the period of 'heat' either occurs so seldom, once or twice a year, or when repeated more frequently, as in the cow, the sheep, the pig, etc., it is so interfered with by ordinary circumstances, such as our economical arrangements and the like, that the animals are either immediately impregnated, or the recurrence of maturation of ova is obstructed and stopped by the secretion of milk. That analogy, otherwise so striking, with one of our commonest domestic animals, the cow, should have remained for the most part unnoticed, is no doubt to be attributed to some of the above circumstances."

To the question, should it be asked : Why do not the females of the lower animals menstruate with the persistent regularity with which the human female menstruates? the reply made be made that, under like advantages of food, warmth, and similar advantageous environments, they do so to a very large extent; but that, owing to their more constant exposure to conception, the catamenial function is liable to be suppressed by its natural successor, pregnancy. The regular periodical "horsing" of mares is often observed, especially when they are fairly well-fed and not over-worked; while cows, bitches, and other domesticated animals, exhibit regularly renewed signs of sexual aptitude. If it be asked : Do these signs resemble the sanguineous catamenial discharges of women? the reply is unequivocally affirmative; it is supported by reflection, and is confirmed by observation.

My researches have led me to certain conclusions, one of which, fundamentally important, may here be thus tentatively formulated. The sanguineous character of the œstro-menstrual flux bears generally some relation to the degree of evolution of the sexual system in mammalia. Ordinarily, it appears to be proportional with the development of the generative organs, and to be subordinate to their evolution; the chief evidence of evolution consisting in the lateral integration or fusion of the generative canals (Müller's ducts), accompanied by aggregation of the ovarian elements. But it should never be forgotten that intimately correlated therewith are other evolutionary facts, *e.g.*, the higher organisation of the nervous, vascular, and glandular systems, upon the special activity or development of which variation may depend.

Accordingly, in the highest mammals, man and the quadrumana, wherein the uterus is a compact organ* (in the former, traces of the primitive duplicity being but feebly indicated), we find the catamenial flux to consist of almost pure blood. Even in the human species there are individual, often considerable, variations in the sanguineousness of the flux, in part obviously dependent upon the conditions of the blood—some women having only a feebly stained, or even a colourless flow, constituting the "menstruatio alba" of old authors.

In certain of the higher monkeys, in consonance with the law of evolutions already propounded, the catamenial flux is perfect sanguineous, and recurs with regularity every three or four weeks. In cows it is also decidedly, though probably less intensely, sanguineous, and recurs with strict regularity every three weeks. Of the accuracy of this observation, as it applies to highly-bred cattle, I am assured by a most competent and able observer, Mr. Simpson, of Wray Park, Reigate, at whose model farm is a large herd of beautiful Alderney or Jersey cattle of his own breeding; and Mr. Simpson has not only for upwards of fifteen years been a breeder on a large scale (having a herd varying between 70 and 100 animals), but he brings cultivated powers of observation to bear upon the phenomena presented, having in his earlier years studied medicine.

More or less sanguineous (sanguineo-mucous) catamenial fluxes have also been observed to recur periodically in mares, asses, ewes, sows, bitches,

* Gegenbaur says (*Elem. Comp. Anat.*, p. 616) :—"In the Simiæ, as in Man, there is a single uterus, which received an oviduct on each side."

cats, and so on. Wild animals, kept in captivity, often sustain injury in their capacity for reproduction, but not always; and when they do manifest sexual aptitude, it has been observed to obey the law of periodicity (hebdomadal) already adduced. I am indebted to Mr. Bartlett, the able superintendent of the Zoological Gardens, for valuable information on this point. For instance, the hippopotamus, which has borne three young ones in the Gardens, exhibits monthly sexual excitement; the vulvar orifice swelling and weeping. Whether blood escapes is not certainly known, as the creatures frequent the water much at these times, copulation taking place in the water. Elephants, both male and female, become much excited during the breeding season; while some animals, at other times wild, become tame and quiet.

Observation shows that generally the discharge becomes less and less sanguineous as we go lower in the scale of organisation, so that, in the lowest creatures, we see only a mucous exudation, perhaps but slightly, if at all, tinged with blood. In all presenting a vulvar aperture, there is swelling with turgescence of the genital orifice; but the exhalation of blood appears to be mostly, if not entirely, in relation with and subordination to the evolution of the sexual organs, so that, in the lowest forms, it may be represented merely by an odorous mucous flux. Probably, undiscovered exceptions to this law exist. It is believed that their discovery would not invalidate the general truth of the law propounded; they would merely illustrate what is well known in biological inquiries, that variations and divergencies for adaptive purposes are not uncommon in correlation with certain conditions of environment—nutritional, climatic, or other. Pouchet recognised some such relation as is indicated above, but he seems to have thought that it also bore relation to the size of mammals; and he regarded a copious intestiniform uterus, with its extensive mucous membrane, as accommodating a larger volume of blood than the thicker small uterus of woman and the Simiæ was capable of doing. He says: "The quantity of blood emitted by the animal is absolutely related to the structure of its uterus, but the afflux of the fluid towards the genital organ is always proportionate to the size of mammals. The species in which the genital apparatus approaches more that of woman, and which, as in monkeys, have a small and coriaceous uterus, are manifestly regular, and show an abundant external flow of blood. We have seen that the assertions of Buffon, Cuvier, Burdach, G. Sainte-Hilaire, Rengger, Ehrenberg, Raciborski, and Isidore Sainte-Hilaire, leave no doubt in this respect;" and again, "Thus, then, menstruation in the sow is a demonstrated fact. As in human species, there is an emission of blood; but if this is not abundant, it is because this fluid is found in great part poured in the immense extent of the internal generative apparatus."

The generalisation I have independently worked out, and now venture to propound, differs from Pouchet's, in that I regard the relation of the catamenial function, in respect to its sanguineousness, to the generative organs as being, in the main, one of subordination to the extent of their evolution, not merely to the accidents of shape of the uterus or size of the creature. Aberrations in, exceptions to, or divergencies from the law, may in time be discovered, or may declare themselves in the course of inquiry; and the explanation of exceptions, apparent or real, may be found in, or be ascribable to, such causes as difference in the plasticity or adaptability of animals to their environment; in the tendencies of some species to organic degradation, or to other factors as yet unknown; but with the allowances scientific caution would prescribe, it is believed that the general accuracy of the evolutionary law, now provisionally advanced, will become established as observations are extended. Seeing the extreme difficulty of instituting adequate personal inquiry into the phenomena as they are presented in all animals by one individual, it is to be hoped that all who enjoy exceptional

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opportunities for observation, will be so good as to make and record them, so that, in process of time, an accurate record of facts may be garnered.

With ample material furnishing reliable data, further conclusions may become warrantable, and correlations be discovered that are now unsuspected. For example, the flux may be found to bear some relation to the evolutionary or hæmoglobin value of the red cells. Probably, diet influences it also; and, possibly, it may bear some relation to the number of ova, for in the multiparous carnivora the manifestations of heat, including the flux, are more sustained than in the uniparous ruminant.

In illustration of my position, the following passages, borrowed from Gegenbaur, may be usefully quoted :—

"Two completely separated uteri open into a vagina in many Rodentia (Lepus, Sciurus, Hydrochœrus, etc.), and in Orycteropus. In other Rodentia, the two uteri are only united for a short distance into a common opening into the vagina (*e.g.*, Cavia, Cœlogenys, Mus). This leads to the arrangements seen in the uterus of the Insectivora, Carnivora, Cetacea, and Ungulata, where a single uterus is continued into two separate cornua, which are continued into the oviducts. When the common portion of the uterus is elongated, the cornua are shortened; this is the case in the Chiroptera and Prosimiæ; in the Simiæ, as in Man, there is a single uterus (C), which receives an oviduct on either side. The cornua of the uterus, and the common uterus itself, vary very greatly in length; so, too, does the vagina, the mucous membrane of which may be variously modified. In many Rodents (Logotomus), a certain portion retains its original double nature. Its opening into the urogenital sinus is sometimes distinguished by a temporary fold of mucous membrane, which is known as the hymen. This has been observed in the Ruminantia, Carnivora, etc.; but it is in the Simiæ only that it has the same relations as in man. The primitive Müllerian duct, which only served for the passage of the generative products, is, therefore, differentiated into three parts, owing to the great physiological changes that happen to it; and of these parts, the first, or Fallopian tube, alone retains its primitive relations.

"The ovaries, which are generally small, vary greatly according to the relation and obtains beween the follicles and the stroma of the ovary. In a large number of mammals they are racemose in form. They seldom retain their primitive position, and generally travel towards the pelvic basin, or, with their oviducts, are completely enclosed in it. They are always in close relation to the oviduct, or, rather, to its infundibular cœlomic mouth, for a process of the margin of the ostium extends to the ovary. The mesenteric folds (ligamenta uteri lata), which support the ovaries and oviducts, and unfrequently unite with the pouch that encloses the ovary to form the mouth of the oviduct (as in the carnivora)."

We may now examine the evidence furnished by observation upon the females of the lower animals at their periods of heat. It will be apparent that there is singular accord in the statements of competent observers upon the phenomena as they present themselves in the various animals; and that, in all the creatures subjected to inquiry, some more or less conspicuous flux or exudation occurs; the majority exhibiting manifestations partaking in varying degrees of a sanguineous character.

In observing domesticated animals, and still more those in a state of captivity, the same allowances for individual variations should be made as would be made in regard of women; in whom we find laborious life and hard fare to some extent diminish the flow; while ease, luxury, and plenty (not excess) promote it. Again, racial peculiarities, with the lower animals as with the human species, may unquestionably affect the character of the flow.

Very slight changes in normal conditions affect the capacity for reproduc-

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tion in all animals ; hence, many creatures fail to breed in captivity, while, on the other hand, domesticable creatures have augmented powers. Mr. Darwin's statements to this effect are numerous and weighty. In "Animals and Plants under Domestication," vol. ii., pp. 143-4, he says :—"It would appear that any change in the habits of life, whatever these habits may be, if great enough, tends to affect in an inexplicable manner the powers of reproduction. The result depends more on the constitution of the species than on the nature of the change ; for certain whole groups are affected more than others ; but exceptions always occur, for some species in the most fertile groups refuse to breed, and some in the most sterile groups breed freely. . . . Changed conditions of life have an especial power of acting injuriously on the reproductive system. The whole case is quite peculiar, for these organs, though not diseased, are thus rendered incapable of performing their proper functions, or perform them imperfectly." *Ibid.*, p. 256 :—"We know that certain groups of organic beings, but with exceptions in each group, have their reproductive systems much more easily affected by changed conditions than other groups—for instance, carnivorous birds more readily than carnivorous mammals, and parrots more readily than pigeons ; and this fact harmonises with the apparently capricious manner and degree in which various groups of animals and plants vary under domestication."

(*To be continued.*)

SWINE PLAGUE.

In a letter recently addressed by M. Pasteur to the Paris Academy of Sciences, dated from Bolleue (Vaucluse), some important information is given by that eminent investigator regarding the very disastrous disease of pigs known to our French colleagues as the *Rouget*, or *Mal Rouge des porcs*, and in this country as *Swine Plague or Fever*.

It was estimated that more than 20,000 pigs had died from the disease in 1882 in the departments in the Valley of the Rhone. Pasteur was sent thither by the French Government to investigate the nature of the malady, being accompanied by one of his co-workers, M. Thuillier, and the results of his researches are resumed in the following propositions :—

1. The *Mal Rouge* of pigs is produced by a special microbe, easily cultivated external to the animal body. It is so fine that it may escape very close observation, and bears the closest resemblance to the microbe of Fowl Cholera. In shape it is also like the figure 8, but finer and less visible than that of Fowl Cholera, and it differs essentially from it in its physiological properties. Without effect on fowls, it kills rabbits and sheep.

2. Inoculated in the pure state in pigs, in almost inappreciable doses, it promptly produces the disease and causes death, with all the characteristic symptoms observed in non-inoculated cases. It is particularly fatal in the white, improved breeds, which are most valued.

3. Dr. Klein, of London, published an extensive work in 1878, on the disease, which he designated Pneumo-enteritis of the pig ; but he was entirely deceived as to the nature and properties of the parasite. He described as the microbe a bacillus with spores, even more voluminous than that of Anthrax. Very different from the true microbe of *Rouget*, Dr. Klein's *bacillus* had, besides, no relation to the etiology of this disease.

4. After assuring ourselves by direct experiments that the malady did not recur, we afterwards succeeded in inoculating it in a benignant form, and the animal was then refractory to the fatal form.

5. Although we consider that more experiments are still necessary, we are confident that, commencing with next spring (1883), inoculation with the attenuated virulent microbe of the disease will be the safeguard of the pig-sties.

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PROPOSED VETERINARY COLLEGE FOR IRELAND.

DR. LYONS is actively moving in the matter of a veterinary college for Ireland, and obtaining considerable encouragement. The medical faculty of the Catholic University had already passed a resolution in favour of the proposed college some time ago, and the Doctor, having written to the Council of the Royal College of Surgeons of Ireland, that body adopted the following resolution on April 9th :—"That the letter of Dr. Lyons, M.P., be placed in the minutes, and that he be informed that this Council highly approve of the project of establishing a veterinary college in this city ; that they will be prepared to give him any support in their power in trying to induce the Government to carry out a project so likely to prove of such value to the country at large."

As we have already expressed our opinion as to this project, we need not again refer to it, except to repeat that the profession cannot have much objection to one, or even many teaching schools being established in Ireland—though the competition between schools is not always advantageous to the general interests ; but a licensing school would be most objectionable in every respect, and (in Ireland especially) would prove most damaging to the progress of veterinary medicine in these kingdoms. But as the Government is now determined, in the Medical Acts Amendment Bill, to have only one licensing body for the medical profession, it is not likely to sanction two for such a small profession as ours.

THE DEGREE OF DOCTOR OF LAWS.

THE members of the veterinary profession will be pleased to learn that, by resolution of the Senatus Academicus of the University of Glasgow, his native city, the degree of LL.D. was conferred on Mr. George Fleming, Army Veterinary Inspector, at the graduation ceremony there on April 27th, in recognition of the services he has rendered to medical and veterinary science, and particularly to comparative pathology and sanitary science. We believe this is the first time that a university has acknowledged the claims of veterinary science to the highest honour the senate can confer.

THE FLEMING TESTIMONIAL.

THE committee beg to announce that the presentation of this testimonial will take place at the annual meeting of the Royal College of Veterinary Surgeons, at Freemasons' Hall, on the 7th inst.

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

QUARTERLY MEETING OF COUNCIL, HELD APRIL 2ND, 1883.

G. FLEMING, Esq., President, in the chair.

Present—Professors Axe, Robertson, and Simonds ; Messrs. Anderson, Batt, Broughton, Cartledge, Cartwright, Collins, Cox, Dray, Harpley, Perrins, Santy, Simcocks, Simpson, Taylor, Whittle, Woods, Wragg, Sir Frederick Fitzwygram, and the Secretary.

The SECRETARY read the notice convening the meeting.

The minutes of the previous meeting were taken as read and confirmed.

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It was agreed that Professor Walley's motion should remain suspended.

The SECRETARY said he had received letters from Professor Walley, Mr. Reynolds, and Mr. Blakeway, regretting their inability to attend the meeting.

The SECRETARY read a letter from the North of England Veterinary Medical Association, containing a resolution passed by that Society with regard to pupilage and the practical examination of students.

It was agreed that the letter should be recorded, and a letter of acknowledgment sent in reply.

Memorial from Scotland.

The SECRETARY read a letter from Mr. C. Cunningham on behalf of three Scottish Veterinary Medical Associations.

Mr. TAYLOR proposed that the subject should be referred to a committee at a future meeting, subsequent to the annual meeting, and that the Secretary should acknowledge the letter.

Mr. WOODS seconded the motion, which was agreed to.

The SECRETARY said that through Mr. Harpley, executor of the late Mr. William Field, the Museum had been presented with a very handsome case of horseshoes, together with some others which had taken the prize at the Exhibition of 1862. A letter had also been received from Mr. Harpley, stating that Mr. Field had left a sum of £1,000 towards the new building, provided a like sum was obtained within a year.

Mr. DRAY moved that the Council, having received intelligence of the demise of Mr. William Field with much regret, the Secretary should be instructed to forward a letter of condolence and sympathy to his family in the loss they had sustained. The name of Field was a household word among them, and although that gentleman had attained the age of seventy-nine, he (Mr. Dray) thought there was little doubt that his life would have been prolonged had not the sudden death of his son, in consequence of an accident in the hunting-field, caused such a severe shock to his mind and system.

The PRESIDENT said it was almost superfluous to add to the words of Mr. Dray. In Mr. Field the profession and public had a friend and a servant. In London his integrity in his profession had become almost a proverb. Mr. Field's donation was the first the College had ever received, and it showed his sense of the importance of their profession and College.

The motion was agreed to.

The discussion of the terms of the bequest was adjourned until the next meeting.

Diplomas were granted to Messrs. Gray, McGrath, Kilburn, and McArthur, as holders of the Highland and Agricultural Society's certificate.

The Report of the Examination for the Royal Agricultural Society Prizes.

The SECRETARY read a letter from Mr. Jenkins, the Secretary of the above Society, stating that, in consequence of the paucity of candidates for the examination, in future prizes would no longer be offered by the Royal Agricultural Society.

The PRESIDENT said he attended the meeting of the Veterinary Committee of the Royal Agricultural Society when the subject was discussed, and could not help feeling a sense of humiliation that the prizes had been so badly competed for. In the course of seven years only nineteen competitors had appeared; and he could not say a word in defence of the profession. He thought that the best thanks of the profession were due to the Royal Agricultural Society for its generous effort towards establishing a better practical knowledge of cattle pathology amongst the younger members of the

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profession. No one could possibly complain of the course the Society had adopted.

The Report of the Court of Examiners.

The SECRETARY read a list of the names of students that had been admitted at the various colleges.

The Report of the Registration Committee.

The SECRETARY read the report.

Mr. DRAY moved, and Mr. TAYLOR seconded, that the report be received.

The motion was carried.

Mr. DRAY said the amount collected by the Secretary was £4,217 17s. The gross credited account would be about £3,344 5s.

Mr. SIMCOCKS asked on what principle the Committee decided to admit some of the applicants.

The PRESIDENT said that affidavits were sent in by these men to the effect that they had been five years in continuous practice, together with certificates of moral character, and those who were not objected to by members of the profession were of course passed as eligible. There had been so much hearsay evidence against them that all protests had to be made in the form of an affidavit, oath against oath, and in every case in which that had been done the affidavit of the members of the Royal College had been taken in preference to that of the applicant. The sittings of the Committee appointed had been long and tedious, they being most anxious that justice should be done to the public and to the applicants. Although a man might have been admitted to the Register, his name could still be removed if it was afterwards found that he had made a false declaration.

Mr. CARTLEDGE said that to his own personal knowledge several members had been admitted who, he thought, ought not to have been ; but he had not chosen to take action in the matter.

Prof. SIMONDS asked whether the Secretary could inform the Council what was the total number of members of the Royal College of Veterinary Surgeons.

The SECRETARY said he thought the total number to date was about 2,600.

Mr. TAYLOR said although the number of those men that had passed for registration under the Act might appear very large, he thought, under the circumstances, the Council ought to be liberal, for those men were not veterinary surgeons, but only veterinary practitioners.

The PRESIDENT said that the only thing that registration did was to exempt them from the penalties of the Act of Parliament. He did not himself think that by the addition of those names to the Register the importance or dignity of their profession was in the slightest degree diminished.

Mr. SIMCOCKS said he wished to move an amendment to the report. He felt that the reading of the Act was that those gentlemen selected for registration should receive intimation to that effect. In his opinion they should get nothing of the sort. The fact of their not receiving their money back would be sufficient intimation. He was sure that such letters would be framed and exhibited as diplomas.

Mr. CARTLEDGE proposed that a copy of the list of existing practitioners be sent to each of those existing practitioners who were so registered. If that were done every man would find his name included in the list, but could make no improper use of it.

Mr. SIMCOCKS said he would withdraw his amendment and second Mr. Cartledge's proposition.

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Mr. DRAY said he begged to move the adoption of the recommendation of the Registration Committee.

The motion as amended was put to the meeting and carried.

Mr. TAYLOR proposed, and Mr. SANTY seconded, a vote of thanks to the Registration Committee, for the very satisfactory manner in which they had fulfilled their duty.

The motion was agreed to.

Mr. WHITTLE proposed that the fees of those who had been rejected for registration should be returned, with an intimation that their claim, having been considered, was not substantiated.

Mr. TAYLOR seconded the motion, which was agreed to.

The Report of the Finance Committee.

The SECRETARY read the report of the Finance Committee.

Mr. DRAY called attention to the expense incurred by the examiners going to Scotland. He thought some action ought to be taken, that one examiner should be elected for Scotland and one for England, which perhaps might obviate the difficulty. After all expenses had been paid, they had only received a small balance from Scotland in the shape of fees.

The PRESIDENT said it had been decided by the Council that as far as possible the same examiner should examine both in England and in Scotland. After next year the examinations in England and Scotland would be only two in number; that at once got rid of one item of expense. Many of the examiners lived in the south, therefore they had a very long way to go. The small income was due to the small number of students in Scotland, and if the number had been larger the travelling expenses would have been the same.

Mr. BROUGHTON proposed the adoption of the report of the Finance Committee.

Mr. WHITTLE seconded the motion, which was agreed to.

Cheques were ordered to be drawn.

The Report of the Committee appointed to investigate a Case of Fraud by a Member of the Royal College of Veterinary Surgeons.

The SECRETARY read the report of the Committee appointed to consider the case of Mr. Gaskin.

On the motion of Mr. TAYLOR, seconded by Mr. DRAY, the report was received.

The PRESIDENT said he was present at the meeting when the case of Mr. Gaskin was fully investigated. As far as he could judge, the Committee were not at all impressed with his truthfulness. He denied several acts of which he had been guilty until he was reminded of them from the information received. The case had excited so much attention in the public newspapers, and the frauds Mr. Gaskin had practised in the name of his profession had been so great, that the Committee felt there was no other course open to them than to make the recommendation they had done. It was a painful thing to make such a recommendation; but the interests of the profession, no less than those of the public, required that such cases should be investigated and dealt with by the College

Mr. DRAY moved that the report be adopted, and the name of Mr. Arthur Gaskin be removed from the Register.

Mr. TAYLOR seconded the motion, which was agreed to.

The PRESIDENT asked whether it was the wish of the Council that the names of those gentlemen removed in that way from the Register should

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appear in the report and in the published reports of the proceedings. He thought that the public should be informed of the fact.

It was resolved that such a course should be adopted.

The Election of an Examiner for England and Scotland instead of Mr. Dan Gresswell.

The PRESIDENT said that during Mr. Gresswell's illness, which he was grieved to say had terminated in death, his (Mr. Gresswell's) son, who practised at Nottingham, had been appointed. It had now, therefore, become necessary to appoint a successor in his stead. In the person of Mr. Gresswell they had lost a gentleman who not only stood high in his profession in his own locality, but whose name was known throughout the country. He had been Mayor of Louth, and had been an Alderman of his native town for a number of years.

Mr. DRAY moved "That the Secretary be instructed to send a letter of condolence and sympathy to his son and family for the loss they have sustained."

Mr. TAYLOR seconded the motion, which was agreed to.

Messrs. C. Gresswell, Archibald Robinson, Alexander Robinson, Borthwick, and McGillivray were nominated.

The ballot was then taken, and Mr. Archibald Robinson was declared elected in the place of Mr. Dan Gresswell.

The SECRETARY then read the Obituary List.

SPECIAL MEETING.

The Consideration of the Annual Report.

Mr. TAYLOR proposed that the President, the Treasurer, and the Secretary be appointed as the Committee to draw up the Annual Report.

Mr. WHITTLE seconded the proposition, which was carried.

The Annual Meeting.

The PRESIDENT said that the annual meeting would be held on Monday, the 7th of May. The question to decide was whether it should be held in London, Edinburgh, or in Dublin, either of those places being permissive.

Mr. SIMCOCKS moved "That the annual meeting be held in Dublin." In the interests of the Royal College of Veterinary Surgeons he thought that, as an attempt had been made to establish a Licensing College in Dublin, it would be as well to hold their annual meeting in that city, in order to disabuse the mind of the public of such an idea. The novelty would be so great that he was sure three-fourths of the Irish members would attend; and a great many of their Lancashire friends had promised to attend.

Mr. TAYLOR said he was sure a visit to Dublin would do the members a great deal of good; and as the opportunity would not occur again for three years, he had great pleasure in seconding the proposition.

Genl. Sir FREDK. FITZWYGRAM supported the proposition.

The PRESIDENT said that there were one or two objections to such a course being adopted. In the first place, their experience in Scotland with regard to the attendance of members was not a very happy one. It had been proposed this year to hold a meeting of the British Veterinary Association in London, and the proposition had been so widely and favourably received that he thought it would collapse if a meeting of the Royal College were held in Dublin. It would be a disappointment to about one-half of those members of the profession who had signified their intention of joining

that Association. He thought that a little longer notice should be given to their Irish colleagues before a meeting in Dublin was decided upon.

The SECRETARY read clause 11 in the Supplemental Charter, relating to the question, and the Council decided that the annual meeting could not legally be held out of London.

Mr. SIMCOCKS withdrew his motion, and it was agreed that the annual meeting should be held at the Freemasons' Tavern.

The Annual Dinner.

It was agreed that the annual dinner should be held at the Freemasons' Tavern.

The TREASURER said he had received from several members letters complaining of the charge for the dinner last year. The cost had been about 30s. per head.

The PRESIDENT proposed that the number of guests and the cost of the dinner should be left in the hands of a Dinner Committee.

A Dinner Committee, consisting of the President, Messrs. Axe, Batt, and Wragg, was accordingly appointed, and it was agreed that the cost should not exceed 25s. per head.

The following Scrutineers were appointed :—Messrs. A. Broad, George Broad, E. Batt, Sheather, Peacock, Charles, Hancock, Shave, P. Spooner, Pottinger, Talbot, junr., and Mr. Gibbings.

The PRESIDENT said that the Register would be shortly ready to go to the printer, and it was a question for the Council to decide how many copies should be printed, and whether it would not save the Secretary much time and trouble if the sale of the Register were entrusted to some bookseller in London.

It was decided that the finding of a suitable publisher should be left in the hands of the President.

Professor SIMONDS suggested that the Secretary should be instructed to send advertisements to the journals of the names of the publishers of the Register.

Mr. WRAGG asked whether the ballot-papers should be kept open for an hour after the meeting. There was an intimation to that effect on the paper. Last year it was not done.

Professor ROBERTSON asked if the name of the voter was on the ballot-paper ; if so, the ballot-paper was no ballot-paper at all, because whoever received the paper then knew who was voting for a particular person. He thought many of the members had a decided objection to voting in that fashion.

Mr. WHITTLE proposed that the name be removed from the outside of the envelope.

Mr. TAYLOR seconded the motion, which was agreed to.

Mr. COX called attention to a letter that had appeared in the VETERINARY JOURNAL for the current month, written by Professor Walley, complaining of the way in which the examinations were carried on, and stating that the examiners expected answers that would often puzzle their elders, and made no allowance for the nervousness and anxiety of the student. He thought such remarks appearing in a public journal were extremely indiscreet, and tended to disturb the equilibrium of the students coming before the examiners, they thinking that they would have an unfair examination. Invariably, if the teachers had not brought their students up to the requisite standard, the examinations were looked to to find it out. The Colleges had frequently complimented the examiners on picking out the best men, and the students themselves had expressed their acknowledgments of the kindness they had

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received when undergoing their examinations. He did not think that anything exacting had ever been exercised towards the students. He thought it was due to the Council that he should call their attention to the matter, and that it was also due to the examiners that they should be supported by the Council in carrying out their duty.

Professor ROBERTSON said he was thoroughly satisfied that the students received a just and fair examination ; at the same time he thought that the examinations of the present day were somewhat harder than they were fifteen or twenty years ago. They all knew that examinations were only approximative, and sometimes it happened that a good man made a bad appearance, for the want of ability to bring out knowledge that he really possessed. He felt sure that the Council, as it had done before, would most heartily support the Board of Examiners, and give them all the consideration they required.

The PRESIDENT said he thought Mr. Cox was perfectly justified in bringing the matter before the Council. The position held by the examiners was one of great responsibility : upon their shoulders was placed a trust which he was sure they discharged to the very utmost of their ability. He was sorry Professor Walley was not present, because he never liked to pass remarks about absent people. He considered the letter referred to calculated to convey an altogether false impression to the minds of the students as to the manner in which their examinations were conducted. There was sometimes a feeling engendered in Edinburgh that students were not fairly examined. All the schools except one were well represented on the Council ; and if anything was amiss in the examinations he was certain the Council would entertain a complaint and thoroughly investigate it.

Mr. DRAY proposed a hearty vote of thanks to the President.

Mr. WHITTLE seconded the motion, which was unanimously agreed to.

LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

THE annual meeting of the above Association was held in the Medical Institute, Hope Street, Liverpool, on Tuesday, the 13th Feb.

There were present, the President, (Mr. Reynolds) in the Chair, Messrs. Morgan, Elam, Kitchen, Moore, Butters, Brizell, Kenny, and the Secretary, Liverpool ; Messrs. P. Taylor, W. A. Taylor, T. Taylor, Greaves, Faulkner, Locke and Lawson, Manchester ; Mr. Woods, Wigan ; Mr. Whittle, Worsley ; Messrs. Edwards and Storrar, Chester ; Mr. Pilkington, Woolton ; Mr. Stone, Little Houlton ; Mr. Barron, Sutton ; and Mr. Dacre, Altrincham.

Letters of apology intimating their inability to attend were received from Professor Williams, Messrs. Darwell, Wolstenholme, W. Leather, A. Leather, Bell, Roberts, and Lewis.

The minutes of the previous meeting were read and confirmed.

It was proposed by Mr. Geo. Morgan, seconded by Mr. Greaves, and unanimously carried, that Professor Robertson be nominated and supported by this Association for one of the forthcoming vacancies in the Council of the Royal College of Veterinary Surgeons, and that a committee be appointed to co-operate with the Lancashire, Irish Central, Scottish, Metropolitan, and Yorkshire Veterinary Medical Societies, to assist in returning their nominations as members of Council.

Messrs. Reynolds, Moore, Kitchen, and Bain were the members of committee appointed to co-operate with the above societies.

Mr. GREAVES moved "That this Association gives its hearty support to the National Veterinary Medical Association." He considered the Congress would be sure to do a deal of good, and stimulate science. A report would

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be issued after each meeting, which would prove of incalculable benefit by the essays and other matter it would contain.

Mr. WHITTLE seconded Mr. Greaves's motion.

Mr. MORGAN could not see his way clear to support Mr. Greaves's motion, and moved an amendment, "That the Liverpool Veterinary Medical Association remain neutral."

Mr. T. TAYLOR seconded Mr. Morgan.

After considerable discussion, in which the President, Mr. Taylor, Mr. Moore, and others took part, it was resolved that this Association remain neutral.

Mr. ELAM nominated Mr. Ross, Liverpool, for election at next meeting.

Mr. FAULKNER proposed Mr. J. Brizell and Mr. T. Butters, Liverpool, and Mr. Lloyd, Denbigh, as members of the Association.

Seconded by Mr. KITCHEN, and carried unanimously.

The PRESIDENT then read his inaugural address :—

Gentlemen,—I ought to be the last to question your wisdom in electing me a second time to be the President of this Association, but I cannot refrain from an expression of sincere regret that neither of the gentlemen, the first and second of your choice, would consent to accept the honour. Both have merited to the full the honourable position it was your wish to confer, and either of them would have occupied it with individual distinction, to the advantage of the Association, and to the dignity of the whole profession. When your third choice fell upon me, I was impelled by several reasons to accept this chair. Amongst them a sense of duty born of gratitude for the numerous proofs I have received of your appreciation of my services—for to the members of this Association is due my election to the Council of the Royal College of Veterinary Surgeons ; a desire to do all I can for the advancement of the profession ; a high estimate of the honour conferred ; and, lastly, a wish to efface from my memory the recollection of some painful incidents which the older members will remember, disturbed the harmony of our meetings when, ten years ago, I occupied a similar position. The discussions which then arose upon alleged breaches of professional etiquette were commenced by rancorous attacks, provoking recrimination equally virulent, and left a dark shadow upon a period which would otherwise have lived in my memory amongst its happiest reminiscences.

The themes of presidential addresses have usually been drawn from past histories and present occurrences ; and whilst I am constrained to briefly touch upon circumstances connected with the immediate past, I shall in the main occupy my short time in some anticipations for the future, and review very shortly some of the influences which I believe are in operation to promote or retard the advancement of the veterinary profession.

Only ten years ago, the medical world was content to recognise and to classify all zymotic diseases as groups of effects ; of their precise causes little or nothing was definitely known. And no longer than three years since the germ theory of disease was spoken of as a vague and mysterious influence. But as research into causation became more minute and systematic, a mass of evidence accumulated which has led up to the identification of whole genera of organisms that are now believed to play the most important part in the production and dissemination of destructive maladies. More recent experiments have shown that some of these minute organisms are capable not only of being identified as the essentials of certain diseases, but that they can be isolated from the body of an infected animal, made to multiply, and by processes of artificial cultivation, their deleterious influence may be modified, weakened, or destroyed.

Under ordinary conditions, inoculation with an infinitesimal quantity of

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blood or fluid taken from an animal suffering from specific disease—such as Rinderpest, Splenic Fever in cattle, Fowl Cholera in poultry, Small-pox in sheep, Glanders in the horse, and Rabies generally, will in the natural course of events produce death in perhaps eighty per cent. of animals inoculated; but the distinguished French chemist, Pasteur (whose name will be immortalised for his discoveries in this line of research), has experimentally demonstrated that by processes of artificial cultivation, the potency of the germs of certain of these infective fevers can be weakened to varying degrees of virulence; that is to say, by altering the methods of culture, or by arresting it at different stages, a fluid may be eloborated capable, when inoculated, of causing fatal results in 60, 40, 20, or 5 per cent; and, moreover, that by allowing the ripening to proceed further, so great a degree of alteration can be secured, that the germ-bearing fluid, when introduced into a healthy system, produces no symptom of affinity with those of the original disease, as usually evolved.

Most persons are aware that just as successful vaccination is a protection against Small-pox, so does one attack of certain other infective diseases render the system refractory to a second invasion of the same kind, and that under such conditions exposure to even powerful sources of infection is unattended with positive results. M. Pasteur discovered that precisely the same state of things followed the experiments, and that healthy animals which had been inoculated with attenuated virus were protected from a second attack, whether the final source of contagion was due to cohabitation with diseased animals, or to the direct introduction of fluids of the most powerful virulence. This important and most valuable discovery is the parent of what M. Pasteur designates, not very aptly I think, *Protective vaccination*, an operation, moreover, which is probably destined to confer the most precious benefits upon mankind, and also on domesticated animals; it is likely to revolutionise the practice of physic and conservative sanitation; for if the hold which science appears to have obtained over the minute creations—the essential accompaniments, if not the factors of contagion—proves to be permanent, there never was a time in the history of medicine when diseases of the most appalling kinds were so near being brought under the control of physicians—human and veterinary. Already the germs of Fowl Cholera, Splenic Fever, Sheep-pox, and Swine Typhoid have been not only cultivated to safe attenuation, but so used as "vaccination" agents that they have been found to confer upon inoculated subjects an immunity from subsequent attacks. At the present time, the virus of contagious Pleuro-Pneumonia is very much experimented with, the results as yet indeterminate are such as to permit the indulgence of a hope that in this case, also, science will prove triumphant. Within the next decade it is far from improbable that scientists will be able to identify, and by culture to enfeeble, the "Contagia Viva" of Glanders, Rinderpest, Rabies, and many other maladies which in their natural unmodified conditions are so fatally malignant. It will then come within the sphere of every-day veterinary surgeons to put to practical use the results of these scientific researches.

It would not be right to pass from this subject without congratulating the profession, and especially this section of it, who at our November meeting had the opportunity of hearing a very instructive lecture by Professor Williams upon the probable etiology of Louping-ill—a disease which annually causes great losses to the northern sheep-farmers. It is perhaps premature to speak positively upon the stability of the professor's deductions; yet the lines of argument be laid down could be readily followed, and his facts carried such a feeling of conviction that it is not too much to hope that in this kingdom we have at least one veterinary surgeon whose researches compare favourably with other followers of the eminent M. Pasteur.

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In a brief review of the aspect of veterinary affairs political, I am sure you will accord to me your indulgence for omitting any especial reference to the recently obtained Veterinary Surgeons Act. The time for criticism upon the probable results of its operation has not arrived, nor is this chair the proper place for the critic to occupy ; in due course the subject will doubtless receive the attention its importance deserves.

The education of the youthful veterinary surgeon has occupied the minds of all interested in the welfare of the profession for a number of years; but the progress to a satisfactory solution of an admittedly difficult problem does not appear to have been at all commensurate with the amount of labour and thought bestowed upon it. It is not that the periods of study have not been prolonged ; it is not that reforms in the modes of examination have not been instituted ; nor yet that means have not been adopted to insure the possession of at least a moderate education by the graduate on his admission to the teaching schools. The College professors, the students, the examiners, and the Council have each in turn been blamed for what I am afraid is more a fact than a fear, that a considerable percentage of students at the time their educational careers are supposed to be completed, and they are entrusted with a diploma, are not what that diploma certifies them to be, "Fully qualified to practise the art and science of Veterinary Surgery and Medicine." Of course, it is not to be expected that every one who chooses the life of a veterinary surgeon can be successful ; the routine of our profession, as seen from the outside, possesses many attractions to young men, some of whom have no real aptitude for the work they are allured to adopt, and afterwards discover to their cost that the bent of their inclination lies in another direction. It is not in the power of education to develop that which has no existence ; but where personal fitness does exist, the man will assert himself in spite of opposing circumstances. In no case, however, is it to be expected that a young man of twenty or twenty-one years of age can by any possibility become proficient in the *practice* of a profession which, for complete fulfilment, requires, perhaps more than any other, a wide range of observation and extended experience ; and I am of opinion that so long as men of this age can obtain a diploma, it will be necessary for them to mature their practical knowledge by acting as assistants or improvers to established practitioners, for periods which will vary according to individual receptivity. As you are aware the Council of the R.C.V.S., at the last quarterly meeting, decided by a majority to obtain power by supplementary charter to enforce compulsory pupilage, an effort I presume intended to remove in some degree culpable negligence from the Council or its examiners, to the student ; but it seems to me that such an attempt to shift responsibility is about as logical as is the reasoning of an ostrich, which, in time of danger, hides its head in a sandheap, and believes itself secure. I am one of the last to assert that practical proficiency can be accomplished without *prolonged* service with a practitioner, but I hold an equally strong opinion, that the desired object may be attained by the adoption of means which will respect the feelings of the students by the avoidance of compulsion. As a nation we have a natural antipathy to coercion, but are ever willing to conform to necessary requirements ; and I believe that when the system of final examination has been rendered of such a character that no graduate will be *able* to obtain his diploma who has not really seen several years' practice perfunctorily, but who during that time has been taught how to apply scientific knowledge to the curative treatment of sick or lame animals. Under such conditions of examination, an apprenticeship with a *competent* practitioner will become an absolute necessity, the college professors will be compelled to teach their pupils how to rightly estimate the importance of their anatomical, physiological, and chemical studies as means to the end and aim of perfecting their pathological

knowledge, and the student will find it essential to apply his theoretical attainments to practical and every-day work. The minute and exhaustive examinations upon general subjects will probably have to be written, and the practical one conducted in the sick-box or cow-shed *largely extended*, and made to comprise, concurrently with pathology, those allied branches of study without which pathology is an empty name. The examiners ought to be taken from the ranks of those who have not only practised with science, but also to personal profit.

The accomplishment of such results in their entirety is beset with very great difficulties, and, as we have seen, important changes of system in education and in examination will be involved ; its achievement can only be gradual, and may be very slow. My inexperience in teaching, as well as in examining, I candidly admit, no doubt discounts the value of my opinion ; nevertheless, I venture to predict a fulfilment of the object we are all striving to attain in the near future, and in the meantime I would most strongly urge the profession not to be down in front of the difficulties which appear to obstruct its consummation ; for surely no effort is too great, no expense too weighty, which may promote the removal of the reproach that the diploma of our College is sometimes obtained by men who are below the proper standard of proficiency in the practical details of their calling.

I should like to say a few words upon professional terms. In all branches of science there is a growing tendency to use words of many syllables derived from the Greek and Latin languages, and some months ago there appeared an article in the VETERINARY JOURNAL, advocating the discontinuance of calling common diseases by commonly understood names. I find no fault with the employment of scientific phraseology amongst scientists, nay, I agree that the nomenclature of animal ailments for the use of veterinary surgeons requires revision, and I admit that the dead-language derivatives are, as a rule, euphonious, and to the educated ear expressive ; but called upon as veterinary surgeons are, day by day, to express to imperfectly educated persons what they have a right to know respecting the condition of their property under treatment, I venture to plead for the retention of those Saxon or old English words, which convey a plain meaning in easily understood terms, and whose very antiquity ought to command some respect. In no place should language be more simple and ungarnished with technicalities than in the witness box ; attempts at high-flown verbosity sometimes there practised with a view of creating an impression of the speaker's importance or learning upon a bench of magistrates or a jury, not only as a rule fail in their objects, but may seriously imperil the interests of a client, or tend to defeat the ends of justice. I am a believer in the words of George Herbert :—

> " Let forraine nations of their language boast
> What fine variety each tongue affords,
> I like our language as our men and coast,
> Who cannot dresse *it* well wants wits not words."

It has recently been asserted that with the end of the year 1882, veterinary empiricism will cease to exist, and doubtless *if* the Veterinary Surgeons' Act can accomplish what is hoped by all of us, and believed in by the promoters and supporters of the measure, empiricism *outside the profession* will be severely checked. Time alone can determine the issue of this question, but, depend upon it, gentlemen, quackery is not to be stifled, much less destroyed, by statutory enactments ; it must be killed by the starvation process, and not until the same energy that has been expended upon the procuration of Acts of Parliament and royal charters has been devoted to perfecting the means for making young veterinary surgeons more competent, will empiri-

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cism die out. The extermination of pretentious practice can only be surely accomplished through the power of that natural law which decrees the survival of the fittest, and so consummated, the result will have been obtained by a high-spirited and commendable policy.

The election of the examiners for the next term of five years has not met with universal approval. One section of the body corporate considers that the examiners in botany, chemistry, and physiology should continue to be chosen from amongst specialists in those studies attached to the medical profession; the other division, to which I have become a convert, urges that the time has arrived when examinations upon every subject may be safely and advantageously entrusted to the elect of our own ranks. I cannot but regard Professor MacFadyean's accusation, that the decision of the Council has destroyed the confidence of both teachers and students by the election of veterinary examiners, as premature and unjustifiable. Such a remark would have been better timed when the experiment had proved a failure. As it is, an assumption of incompetency has been made which, I firmly believe, will bring a measure of regret to its author. No one here will doubt but that the new examiner from the County Palatine will perform his work in a manner that will at once command the confidence of the student, the teacher, and the profession. It is also generally known that the endeavour to secure the exclusive election of veterinary examiners is not the only grievance against the Council; and whilst we may sympathise with Northern practitioners because none of their number were placed upon the Scottish section, we may be permitted to ask if the malcontents have done all they could towards the accomplishment of their desire. If the Council failed in its duty to the North contingent, that failure was due, if not entirely, at least in degree, to the ignorance of some of its members of the names of the best qualified men residing in the North. Scotch interests can be best advocated by Scotchmen, and those interests ought to be fitly represented. Not that they suffer in the hands of the present members of Council resident in Scotland; but in relation to the question at issue, it must not be forgotten that all the Scotch representatives *are teachers*, and that they, consequently, feel great diffidence in advocating the claims of examiners who would be called upon to sit in judgment upon their works as teachers. I believe it to be the general wish that each division of the kingdom should be fairly represented, not only in the Council chamber, but also upon the Board of Examiners. If our Northern colleagues cannot command amongst themselves sufficient influence to secure the election of more of their number upon the Council, they have at least had evidence that we are disposed to assist them to return good men; for Professor Robertson, who, in 1879, was a practising veterinary surgeon in Kelso, was selected by this Association, proposed by its President, and successfully supported.

There are amongst us alarmists who fear lest competition in practice will ere long reduce to a minimum our sphere of profitable employment; but surely such grounds for apprehension are unreal as shadows so long as the progress of our science is not suffered to stand still, and we are collectively imbued with a laudable ambition to keep abreast of recent discoveries. There are untold areas of virgin soil as yet untouched, and, maybe, unthought of, which of necessity can only be tilled by workers of our own especial order.

The inspection of meat, whether the product of imported or home-fed cattle, will assuredly be entrusted to us, and in anticipation of that end we act wisely when we try to determine the line of demarcation between wholesome meat of an inferior quality, and that which has been rendered unfit or unsafe to be consumed in consequence of disease, accidental conditions, or from the effects of therapeutic agents. The distressing results following the consumption of pork and hams containing trichinæ, should before this have

prompted the same vigorous action from our Government as they have determined the movement of the authorities of some Continental countries. Special legislation for the inspection of all possible sources of contamination by imported pork and swine should be enacted, and the conduct of its provisions entrusted to competent persons. The possible relations that exist between bovine Tuberculosis and one of the forms of tubercle as it affects mankind, is a matter of the highest possible importance to the community, and chiefly so in reference to the use of milk as the most important article of diet for its infant population. It is impossible to estimate what amount of infantile disease and debility, to say nothing of mortality, may not be due to the ingestion of milk from cows affected with tubercle.

The provisions of the Contagious Diseases (Animals) Act will have to be extended to meet public requirements, its area enlarged to include some diseases which do not now come within the scope of its operations, and it must deal more stringently with others that are not now completely under its direction. It cannot be doubted but Tuberculosis is on the increase, and I am possessed of presumptive evidence that the disease may be propagated, not only by actual cohabitation, but even by the occupation of a stall from which an affected animal has previously been removed.

The value of domestic poultry has of late years increased to such an extent that a study directed towards the prevention of many diseases which cause frightful mortality to fowls in domestication, grouse upon moors, and to the denizens of pheasantries, offers, if a modest, yet a lucrative field for scientific experiment. When it is remembered that for a single bird a price higher than that of an average horse has been paid, and that every year the mortality amongst highly-bred fowls causes as great pecuniary loss as on many a small sheep-farm, it cannot be questioned but that highly-aimed efforts towards the reduction of the annual loss would not only be appreciated by poultry-fanciers and game-preservers, but would prove a remunerative occupation to a specialist in this particular research. Again, if the anticipations of the benefits to be derived from protective inoculation against disease are in even a minor degree realised, an immense field of employment and usefulness will be opened up to the veterinary profession, and one which, in its relation to cattle and sheep practice, will prove far more remunerative than the curative treatment of many ailments will admit.

The highest medical authorities are now keenly alive to the fact that the study of animal plagues is one of the most valuable sources from which they can glean a knowledge of human disease, and the inauguration of chairs of comparative pathology in universities is seriously contemplated. It is not probable that distinguished positions of this kind will, except in rare instances, be filled by a veterinary surgeon. Such a reflection should not, however, cause us either anxiety or annoyance; the difference between the wide range of the comparative pathologist and that of our more limited functions is very great indeed, and whilst our science must profit by the results of his investigations, he will have to rely upon our practical knowledge and experience for corroboration of the soundness of his deductions; so shall we not be rivals of the higher profession, but rather the indispensable partners of its labours. And, lastly, as the correlation of human diseases with animal plagues is found to be more and more intimate, so will our sphere of usefulness be enlarged, and our *status* in public esteem approach nearer to that enjoyed by members of the medical profession, and our aid sought for the solution of problems of universal sanitation.

The life of our association now numbers eighteen years, and may, I think, claim to have achieved as great a measure of success as most others of its kind. Financially, its condition is not quite as satisfactory as could be desired. The treasurer's statements show that our expenditure has of late

considerably increased, and on that account it may not be desirable to call upon its funds towards the cost of an annual dinner; but our modest minor hospitalities at each quarterly meeting will be associated with a warm and cordial welcome to our neighbours, friends, and strangers, who, in the name of the society, I now invite to give us their countenance and support upon every convenient occasion.

There are few of the luminaries of the profession who have not honoured us at one time or another with their presence, and delighted and instructed us with masterly lectures and addresses. The presence of these distinguished gentlemen has been no less welcome than their intellectual treats have been appreciated. It is my intention, during this year, to request the introduction of subjects of practical interest by members of our own society, and I hope to awaken the energies of our younger colleagues, especially to stimulate them not only to participate in the debates, but also to bring forward subjects for discussion. Modesty and a diffidence to the opinions of their seniors is highly commendable, but the juniors may take courage by the thought that all knowledge is not centered in the most experienced, and they should not forget that in a very few years the administration of affairs of this association will of necessity devolve upon them, and the sooner they become familiar with the duties the future will call upon them to fulfil, the more easy, pleasant, and profitable will those duties be. I am sure I only echo the sentiments of the older members when I say that the ideas of the younger will be received with attention and respect, and if opinions upon the soundness of their arguments differ, those differences will be dispassionately and courteously discussed, to the end that every one working for the common good will derive a substantial and permanent benefit. In the absence of demonstrative proof, it is only by debate that the true metal of science can be separated from the dross; uniformity of opinion is as antagonistic to the perfection of a society as unity is its tower of strength. I will read to you how a most eloquent writer has expressed the difference between unity and uniformity :—

"In unity there is life, beauty, power; in uniformity there is stagnation, deadness, monotony. There is uniformity in the darkness which enshrouds the midnight sky, where neither moon nor stars appear; there is unity in the beautiful bow that spans the heavens, blending its prismatic tints into one resplendent arch of promise. There is uniformity in the waters of the stagnant lake over which the perfumed and vivifying breath of heaven sweeps in vain; there is unity in the gushing fountain, flowing jocund and sparkling from the hidden rock. There is uniformity in the Polar seas, whose waves eternal winter binds as in solid granite; there is unity in the ocean's billows, unfettered and free, rolling in all their majesty and might. Unity and not uniformity is the primary law of God in the kingdom of nature."

Scientific societies possess all the benefits of co-operation without its disadvantages; the useful members do not miss the information they impart, any more than the sun shines less resplendently to-day for the glorious light he yesterday dispersed, or sweet-scented flowers become less fragrant for the odours they have exhaled to the passing breeze. Let no one here forget that he has a duty to perform, a duty peculiarly his own, one that cannot be delegated; for as the organs of our body have distinct functions, but a reciprocal dependence, so every member of an association is in some respect or other necessary and useful to the perfection of the whole.

"What is man,
If the chief good and market of his time
Be but to sleep and feed? A beast! No more.
Sure, He that made us with such large
Looking before and after, gave us not discourse,
That capability and God-like reason,
To rust in us unused."

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At the termination of the address, which was greeted with applause, Mr. Morgan congratulated the President for his able and interesting address. A paper, by Mr. Kitchen, was left over till next meeting.

A vote of thanks to the chairman then terminated the meeting.

ALEX. BAIN, *Hon. Sec.*

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE quarterly meeting of this Association was held in the County Hotel, Newcastle-on-Tyne, on Friday, 23rd February, 1883, Mr. H. Hunter, President, in the chair.

Present :—Mr. J. B. Nisbet, Fence Houses ; Messrs. G. M. Mitchell, and D. Dudgeon, Sunderland ; Mr. W. J. Mulvey, Bishop Auckland ; Mr. J. E. Peele, Durham ; Mr. D. McGregor, Bedlington ; Mr. W. Wheatley, South Shields ; Mr. W. Awde, Stockton-on-Tees ; Messrs. C. Hunting, and C. S. Hunting, South Hetton ; Mr. A. Chivas, Corbridge ; Mr. W. S. Pringle, Gateshead ; Mr. W. Grieve, Blaydon ; Messrs. C. Stephenson, A. Hunter, W. W. Smart, W. Hunter, J. H. Wilson, and the Secretary, Newcastle-on-Tyne.

Visitors, Mr. Stephenson, Sunderland ; and Mr. Blanch, Thornley.

Letters of apology for non-attendance were read from Professor Walley, Messrs. T. Foreman, M. Hedley, H. Peele, and W. G. R. A. Cox.

The SECRETARY read a letter from the Secretaries of the National Veterinary Association, asking support of this Association, and to obtain their assistance in furthering its objects, and completing its formation. He (Secretary) would be most happy to receive their subscriptions, and hoped every member present would join. Undoubtedly it was a step in the right direction, and ought to receive our unanimous support.

The minutes of the preceding meeting were taken as read.

The following gentlemen were then unanimously elected members of this Association :—Mr. G. E. Nash, Richmond, Yorks ; Mr. J. Fairbairn, Alnwick; and Mr. W. G. R. A. Cox, Newcastle-on-Tyne.

Mr. G. M. MITCHELL nominated Mr. Blanch, of Thornley, as a member of this Association.

The following gentlemen were then unanimously elected officers of the Association for the ensuing year :—President, Mr. McGregor, Bedlington ; Vice-Presidents, Messrs. J. E. Peele, Durham, and G. Elphick, Newcastle-on-Tyne ; Secretary and Treasurer, Mr. W. W. Smart, Newcastle-on-Tyne.

Mr. C. STEPHENSON then moved the following resolution :—"That the Examiners having full power to test, in any way they think proper, both the theoretical and practical knowledge of the students, compulsory pupilage is not only unnecessary, but would be positively injurious to the best interests of the profession," and in doing so said :—

Gentlemen,—You all know that harm is sometimes done by over-doctoring our patients. I am afraid our profession is now being over-doctored by our "Parliamentary Committee." You also know that I honestly opposed the Veterinary Surgeons' Bill that was recently passed by a fluke, and that in doing so I received a good deal of blame, and even abuse. That Bill being now the law of the land, it is not my intention to say anything about it, except those men who will "strain at a gnat" (the unqualified practitioner) "and swallow a camel" (the Bill with all its troubles) must suffer the consequences, namely, severe and prolonged indigestion, as shown in the troubles of the Registration Committee and the provincial societies. There are only about 1,000 applicants for registration, and they will be replaced by a constant supply of the same material under another name.

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Gentlemen, since the passing of the Act I confess I have not taken so much interest in the profession as formerly ; but I cannot now resist the opportunity of opposing to the best of my slender abilities the *compulsory* pupilage clause of the proposed new charter. I am sure we all agree as to the great value of practical knowledge, and I do not think any of us will object to pupilage, but I hope and believe there are many amongst us that will honestly object to it being made compulsory. No hard and fast line should be laid down as to how a man is to obtain his practical knowledge—it cannot be done, simply because our opportunities and abilities vary. Let the wealthy pay for pupilage—but do not let us place obstacles in the way of the poor but enthusiastic lad, who looks upon the veterinary profession as the height of his worldly ambition, and who although lacking the ordinary means and opportunities will assuredly press forward and obtain information equal, perhaps superior, to his more favoured contemporary. I would ask you to bear in mind that compulsory pupilage is not required in the medical profession, their students' practical knowledge is tested at the examination, and if it can be done by them, how much easier may it be done in our profession, where there is no lack of subjects and patients. I would ask you to look back and try to remember all your old student friends, and then say if those who had been pupils stood out far ahead of their fellows, did they excel in practical knowledge, and did they make the most useful members of the profession, or is it not a fact that those who struggled against adverse circumstances, had neither time nor money to devote to pupilage, but were filled with determination and enthusiasm, eventually made not only good veterinary surgeons, but in some cases became bright stars in the profession. Many are afraid of non-qualified practitioners ; well, gentlemen, I know of no better nursery for their production than compulsory pupilage.

Gentlemen, my whole heart is in this question ; I can never forget my own early struggles. I could talk to you for a long time, but I refrain, knowing that Mr. Smart's paper is before you, but I appeal to you, nay I beseech of you, to remember the poor struggling lad ; do not put unnecessary obstacles in his way, there are quite sufficient already. I have further to appeal to you on behalf of those who from their early training, it may have been on a farm, or in a forge, or from a natural love and subsequent study of animals have gained a large amount of good solid practical knowledge, more in fact than is generally learnt by pupilage ; to these men, I say compulsory pupilage is not required and would be a positive hardship.

Tax the student's brains, but not his pockets ; there is no royal road to learning. Let the examinations be as stiff and prolonged as is thought necessary, no one can object to that, it is a sure and legitimate way of testing the student's fitness to enter the profession, which a certificate of pupilage can never be. Finally, gentlemen, do not let us lend a hand to kick down the ladder by which many of us have reached our present position. (Applause.)

Mr. D. DUDGEON had great pleasure in seconding the resolution, and said : To make pupilage compulsory would, in his opinion, be injurious to the profession, and hoped this meeting would endorse the resolution.

Mr. MULVEY hoped the present members would support the resolution. The Royal College of Veterinary Surgeons had no right to ascertain where a pupil had obtained his practical knowledge ; but, in his opinion, they ought to enforce a rigid practical examination, and there was no obstacle in the way of their doing so. We had greater facilities than the medical profession.

Mr. MITCHELL had great pleasure in supporting the resolution, and, in his opinion, compulsory pupilage would be an infringement of our rights if it were enforced, and many an able man, for want of funds, would be prevented from becoming a veterinary surgeon.

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Mr. C. HUNTING agreed with all that Mr. Stephenson had said, and would support the resolution.

The PRESIDENT said the gentlemen that were bringing this question of compulsory pupilage forward had the interests of the profession at heart, and were undoubtedly trying to do their best for the good of the profession. In his opinion, if the examiners could not test the students thoroughly, pupilage ought to be enforced.

Mr. D. MCGREGOR had much pleasure in supporting the resolution, and said we ought to use every endeavour to stop compulsory pupilage.

Mr. A. HUNTER agreed with Mr. Stephenson, if the practical examination could be thoroughly carried out, and would make the examination as severe as possible.

The resolution, on being put to the meeting, was carried unanimously.

Proposed by Mr. MULVEY and seconded by Mr. A. HUNTER, that a copy of the resolution be sent to the Council of the Royal College of Veterinary Surgeons.—Carried unanimously.

After considerable discussion on the next election of members of Council of the Royal College of Veterinary Surgeons,

Mr. MULVEY proposed and Mr. CHIVAS seconded, that Mr. Clement Stephenson be nominated for election to represent this Association as a member of Council.—Carried unanimously.

It was also proposed and carried unanimously, that the Secretary write to the different Veterinary Medical Associations, asking their support and co-operation to assist in returning their nominations as members of Council.

Mr. W. W. SMART then read the following essay on "Pleuro-pneumonia Contagiosa":—

Mr. President and Gentlemen,—The subject I bring before your notice this afternoon is one replete with interest to the veterinarian at all times, but is perhaps more particularly so just now to the members of this Association, in consequence of the recent outbreak in this district; and when we take into consideration the fact that in former times in this country this malady has destroyed more cattle than any other disease, and when we bear in mind the enormous sums of money that are paid as compensation for animals slaughtered whilst suffering from the disease, or in consequence of having been in contact with animals so suffering, I think it behoves us to do our best to understand the nature of the malady, and to use our utmost endeavours to stamp it out, or at all events as far as possible to limit its ravages.

The disease is known technically as Pleuro-pneumonia Epizootica, Pleuro-pneumonia Zymotica, or Pleuro-pneumonia Contagiosa, and is locally known as Pleura, Lung Disease, Lig, Lung Murrain, etc. It is believed to have originated in Central Europe, and from thence it has travelled nearly all over the world; but, perhaps, as is the case with other contagious diseases, notably Cattle-plague, it assumes a more virulent form in this country than it does in the countries where it is supposed to have first originated, for I have several times seen foreign animals—even while suffering from the disease in an acute form—in very fair condition, and not exhibiting nearly such distressing symptoms as are shown by English cattle under similar circumstances. I believe it is the general opinion that it does not originate spontaneously in these islands. We occasionally hear of cases which are supposed to be of spontaneous origin; but probably, if the outbreak were thoroughly investigated and the career of each individual animal in the the herd traced, the cause of the outbreak might be accounted for, but this strict investigation is a matter of very great difficulty, not only on account of it being frequently impossible to trace back the career of each individual

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animal, but also from the fact that the owners or attendants of the animals cannot always be persuaded to speak the truth respecting their charges.

By many veterinarians the disease is thought to be transmitted by cohabitation only, but I am somewhat opposed to this theory, as I am not aware that it has yet been satisfactorily determined what that period of cohabitation must be, nor the exact distance that must exist between diseased and healthy animals, in order that the disease may be transmitted from the one to the other; and if, as is generally supposed, the infective poison is of an extremely volatile nature, I fail to see why it cannot be conveyed by the air, or by foreign substances with which it may come in contact. And I am confirmed in this opinion by the fact, that the Order in Council passed for the suppression of this disease provided for the destruction of all dung, fodder, and litter that has been in contact with a diseased animal, and also for the burial of the carcase of an animal that has died from the disease. Surely this would be unnecessary if it had been conclusively proved that the disease was transmittible by cohabitation only, and during the animal's life.

The various writers on the subject couch their definitions of the disease in various terms; they all, however, appear agreed that it is a contagious fever, peculiar to the bovine species, and due to a specific poison, which manifests itself by exudations from the pleuræ and in the substance of the lungs, and having a period of incubation of from fourteen days to a time not yet definitely known. The general symptoms will be so well known to all the gentlemen present that I do not propose to take up your time by describing them in detail, but I shall have to mention some of them when noticing the diseases with which Pleuro-pneumonia Contagiosa is most easily confounded, and probably the disease with which it is most easily confounded is Tubercular Phthisis; in fact I think there are cases where, in the absence of any history to guide him, even the most skilful veterinary surgeon may have great difficulty in arriving at a correct diagnosis during the animal's life; it is, however, of the greatest importance that we should be able to distinguish between the two, and this is one of the points I should particularly like to hear discussed by the gentlemen present.

I think that in Tuberculosis the cough is neither so frequent or so painful, nor is there so much tenderness shown upon pressure being applied to the animal's back and sides, as in Pleuro-pneumonia Contagiosa; and although in both diseases auscultation will reveal either an absence of respiratory murmur, or else abnormal sounds within the cavity of the chest, yet on percussion the dull and "thud"-like sound produced is more marked in Pleuro-pneumonia Contagiosa than in Tuberculosis. Again, animals affected with Tuberculosis do not so often emit that involuntary grunt which is so frequently met with at each expiration of Pleuro-pneumonia Contagiosa, and in milch cows the lacteal secretion disappears, or is diminished in quantity much more suddenly in Pleuro-pneumonia Contagiosa than in Tuberculosis. I do not think the thermometer is of much use in enabling us to diagnose between the two diseases, as in both there is an elevation of temperature.

Animals affected with Filaria, or with Hoose, as it is commonly termed, have occasionally been thought to be suffering from Pleuro-pneumonia Contagiosa, but Hoose is usually confined to young animals; there is an absence of the grunt, and the cough is the moist cough of Bronchitis rather than the hard, dry cough of Pleuro-pneumonia Contagiosa, and in hoose there is usually a quantity of frothy saliva or mucus in and around the mouth, in which the filaria or their eggs may be detected, and in this disease the thermometer does not register nearly so high a temperature as in Pleuro-pneumonia Contagiosa. Foreign substances in the lungs often give rise to symptoms somewhat simulating those of Pleuro-pneumonia Contagiosa. A case recently came under my notice in which a cow during life showed several such

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symptoms, but a *post-mortem* examination revealed the presence of several pieces of wire embedded in the substance of the lungs.

An animal affected with Pleurisy may present many of the symptoms of Pleuro-pneumonia Contagiosa, but here the pulse is hard and bounding—not weak and feeble, as in Pleuro-pneumonia, and the animal evinces great pain when made to turn round suddenly. Occasionally, too, cases of Indigestion, when accompanied with a grunt, have been mistaken for Pleuro-pneumonia Contagiosa.

A great difference of opinion exists among authorities as to what particular portion of the lung is primarily attacked by the disease, some holding that it is the mucous membrane of the bronchi; others the connective tissue or the lobules; while others hold that the pleuræ is the seat of the earliest lesion. In examining a portion of lung when taken from an animal in an early stage of the disease, it is in the connective tissue that we find the greatest amount of exudation, and I therefore think it is probable that it is from the vessels of the connective tissue that the exudate is first thrown out.

Upon making a *post-mortem* examination of an animal that has been slaughtered while suffering from the disease in an early stage, we shall probably find a small quantity of fluid in the cavity of the chest; the pleuræ will not have undergone any very marked changes, but may appear slightly elevated in patches, which elevation is caused by the effusion of serum into the connective tissues lying beneath it, and on the surfaces of the pleuræ may be a slight exudation of lymph; the lung is increased in weight, and upon cutting into it the parenchyma will be found to be darker than is natural, and studded with minute red spots; these red spots being the cut ends of the engorged capillaries and the interlobular tissue will be found charged with a serous effusion, which, when examined under a high microscopic power, is said to contain a number of minute living organisms moving in a rotary direction. These changes in the lung tissue will not be present throughout their entire substance, but in a patch or in isolated patches, the peculiarity of the inflammation of this disease being to attack groups of lobules or a single lobule lying some distance apart. Thus we may have a portion of diseased lung, and at a distance of several inches another diseased portion, the intervening lung tissue being healthy; in this respect it differs from the sporadic Inflammation of the Lungs in which the whole substance of the lung is attacked, the lymphatic glands and the lymphatic vessels will be increased in size and loaded with fluid. In this stage the blood-vessels will be empty and the smaller bronchi filled with a frothy material, consisting of serum mixed with air; it is in this stage of the disease that some operators say is the best time to take for inoculation the lymph which exudes from the cut surface of the lung.

Upon making a *post-mortem* examination of the lungs of an animal suffering from the disease in a later stage, the morbid changes are much more marked; the mucous membrane of the trachea is darkened in colour, and thickened in consequence of the exudate existing beneath it; the lymphatic vessels will be filled with lymph, and their coats considerably thickened; portions of the lung will feel hard to the touch, and the lungs will be attached to the ribs and diaphragm by false membranes. In the cavity of the chest there will be a quantity of yellowish fluid, in which float flakes of fibrin. This fluid is varying in quantity; there may be but little or there may be several gallons; and it is this difference in the quantity of fluid found in the chest that causes butchers to speak of an animal as being a "wet lunger" or a "dry lunger." This fluid contains a large quantity of albumen, and coagulates upon exposure to the atmosphere. Upon the surface of the pericardium and upon the surface of the pleuræ are deposits of lymph, which form the false membranes, by which the lungs are in places attached to the

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sides and the diaphragm. These false membranes are yellow in colour, friable, and easily broken down. Upon stripping off the lymph from the pleuræ pulmonalis, the surface of the lung is seen to be rough and studded with papillæ-like bodies, and upon stripping off the pleura costalis the intercostal muscles appear to be pale in colour and dropsical; the lung is increased in bulk and in specific gravity, and a diseased portion sinks immediately if thrown into water. Upon cutting into the lung substance, it presents a marbled appearance, the lobules being of a darker hue than the connective tissue, and from the cut surface of the lung there exudes a great quantity of serum. The parenchyma is dark in colour and solid; the air-cells and smaller bronchi obliterated by being plugged with lymph; the blood-vessels are filled with coagula, and the capillaries are ruptured, the contents of which escape and discolour the tissues, causing what is known as red hepatisation. The lung structure surrounding the diseased portion is darker in colour and more solid than natural, the interlobular tissue being more clearly defined, and giving it a somewhat mottled appearance. This mottling is caused by the infiltration into the connective tissue between the lobules of the exudate from the adjacent diseased portion, and it is from this part of the lung that the lymph used in inoculation must be taken if no opportunity occurs in procuring it from lungs in an early stage of the disease.

In severe cases death results from Apnœa, consequent on the non-oxidation of the blood by reason of the changes in the lung tissue, or in a long-standing case the animal may die from Anæmia or from Pyæmia, caused by the absorption into the system of the diseased products from the lungs. Pericarditis is a frequent complication of Pleuro-pneumonia Contagiosa, there usually being effusion into the pericardium, which effusion—if the animal partially recovers—may become organised, and form false membranes, or it may degenerate and cause an accumulation of pus in the heart's sac.

Some cases do not proceed to a fatal termination, for in many instances recovery, or rather partial recovery, may take place, for a lung once attacked with Pleuro-pneumonia Contagiosa never resumes its normal appearances or functions, the diseased portion undergoing one of the following changes:—If the progress of the disease is arrested at an early age, the exudate becomes lowly organised and converted into a fibrous substance, which may afterwards undergo softening and cause abscesses in the lungs, or, if the disease be arrested at a later stage, a quantity of lymph is thrown out from the neighbouring healthy lung tissue, which lymph becomes organised, forming a wall round the diseased portion, which after a time becomes detached, and this encysted portion may remain in this condition for a long time. Such cases are of far more frequent occurrence than is generally supposed, and are generally overlooked in consequence of the animal feeding and doing well. I think, however, that it is from these cases that much of the danger to healthy animals springs, for it is possible that an animal whose lungs are in this state is capable for a considerable time of transmitting the disease, especially when the portion of encysted lung is in the immediate neighbourhood of a large air-tube; indeed, it is possible that such an animal may from itself become infected a second time, and it is very likely that to cases of this kind many of the outbreaks are referable which are supposed to originate spontaneously; and it shows the importance of carefully examining the lungs of all the animals that may have been slaughtered in consequence of having been herded with diseased animals, for by so doing we may occasionally arrive at the cause of an outbreak, the origin of which we have been previously unable to trace. Cases of this kind have recently come under the notice of Mr. Stephenson and Mr. Dudgeon, who has kindly brought a portion of the lungs of an infected animal for your inspection. It is of great importance that we should be able to distinguish

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correctly between a portion of lung so encysted and Tuberculosis. In a case of Pleuro-pneumonia Contagiosa, the encysted portion is enclosed in a well-defined sac, and shows but little tendency to undergo degenerative changes; it is said never to undergo calcareous, and not in many instances caseous, degeneration, and for a long time its lobulated character is distinctly visible upon making a section; while with Tuberculosis, in additiono to the deposit in the lungs, we shall most likely, if we make a careful examination, discover additional tubercular deposits in other parts of the body.

It is an important but much disputed question, as to whether the flesh of an animal that has been slaughtered while suffering from Pleuro-pneumonia Contagiosa is fit for human food. I think that the simple fact of an animal having suffered from the disease, even at the time of slaughter, does not necessarily unfit it for food, provided always the carcase—to use a butcher's term—"dries well," and the flesh is of a good colour and firm in texture; but I know some inspectors of meat who hold a different opinion, and who, if they find the lungs affected, condemn the carcase irrespective of the appearance of the flesh. There are cases where the animal was in a sinking condition, and was perhaps at the time of slaughter upon the point of dying from Pyæmia, where of course it would not be advisable to use the flesh for food; but, as I said before, I think it is by the quality of the meat itself that we should be guided as to its fitness for food. I think this meat question is one that should be referred to the educated and duly qualified veterinary surgeon, instead of being left in the hands of the individuals it usually is at the present time, and I hope the day is not far distant when veterinary surgeons will be universally employed by the authorities in advising what meat is fit for human food and what is not.

I do not intend to touch upon the treatment of the disease, as by the existing orders of the Privy Council Office the slaughter of infected animals is compulsory; and not only is the slaughter of the infected animals compulsory, but powers are given to local authorities to order the slaughter of all cattle that have been in the same shed or herd with animals so affected, and to pay compensation for the same out of the local rates. Unfortunately, it is not every local authority that will avail themselves of these powers, some contenting themselves with the slaughter of the actually infected animals only; but I think it is only by the slaughter of the whole herd that we shall ever stamp out the disease, and I think that all veterinary surgeons who act in the capacity of professional advisers to local authorities should impress upon their employers the advisability of availing themselves of the powers to slaughter conferred upon them by the Privy Council Office.

From time to time various medicinal agents have been given to cattle with a view of preventing the disease, seemingly, however, without producing the desired result. Setoning, rowelling, and bleeding have also been had recourse to, and have also failed; inoculation has also been largely practised, many veterinary surgeons of large experience believing in its efficacy and advising its adoption, while on the other hand many deny that it is a preventive. Those who practice it say that it does not produce Pleuro-pneumonia Contagiosa, but produces a change in the animals' system, which renders them incapable of contracting the disease, and direct that it be performed by inserting as a seton in the underneath surface of the tail, about two inches from the tip, a small piece of tape or worsted saturated with lymph taken from the lungs of an animal affected with Pleuro-pneumonia Contagiosa; and that in about ten or twelve days after the operation, if there is an exudation of lymph from the skin near the seat of the operation, it is a proof of successful inoculation, and that the animal is safe from an attack of the disease. The great objection to inoculation is that frequently an unhealthy sore is formed at the seat of the operation, sloughing takes place, and the animal loses a

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portion, and in some instances the whole, of the tail ; and that occasionally, if the animal is not in a good state of health at the time of the operation, the inflammatory fever set up is so great as to endanger the animal's life ; the loss from the latter cause, however, it is said, need not exceed one per cent. if the operator is careful in his selection of lymph, and the animal is carefully attended to and not injured by bruises after the operation. As a further means of prevention, I would suggest that when Pleuro-pneumonia Contagiosa makes its appearance in a herd, and the local authority does not insist on the slaughter of all the animals, that the temperature of each individual animal be taken daily, and if in any case the temperature rises over 102° F. the animal be isolated, and as we do not know the exact stage of the malady at which an animal becomes capable of transmitting the disease, it is just possible that by isolating animals immediately there is a rise in temperature, and by the free use of disinfectants, that we might limit the ravages of the disease. In a short paper like this, it is impossible to give the full consideration such an important subject deserves, but the time at our disposal is short, and I think that we derive much more benefit from a discussion than from listening to the opinions of any one individual, but I trust that the few remarks I have put together will lead to a discussion, from which we shall all derive some benefit.

A very interesting discussion followed, the chief bone of contention being, "How was the disease transmitted : by cohabitation or mediate contagion ?" The subject being very interesting and highly important, further discussion was adjourned until the next meeting.

Mr. D. Dudgeon exhibited some very interesting specimens of Pleuro-pneumonia Contagiosa recently affected, showing well-marked traces of old-standing disease.

A hearty vote of thanks to the essayist and to the retiring President brought a very enjoyable meeting to a close.

GEORGE ELPHICK, *Secretary.*

SCOTTISH CENTRAL VETERINARY MEDICAL ASSOCIATION.

THE fifth quarterly meeting of the above Association was held in the Crown Hotel, Green Market, Dundee, at two p.m., 10th April, 1883—Mr. Ritchie, Vice-President, in the chair—the following members being present, viz. :—Messrs. Black, Johnstone, Philp, Hampton, Panton, Hunter, Kay, Constable, Bissett, Baillie, and Clark, Secretary, Coupar Angus.

Mr. Kay, St. Martin's, having been nominated for membership at last meeting, was declared elected.

The TREASURER (Mr. Philp, St. Andrew's) read a financial statement of the Association for past year, showing the affairs to be in a satisfactory condition.

Several letters were read by the SECRETARY, and particular reference was made to letters from Mr. Geo. A. Banham, Cambridge, Secretary, National Veterinary Association, requesting support of members. After full discussion, it was considered by the majority present that it would be extremely inconvenient for members so far North to attend personally at meetings in London ; consequently they could not see their way to join the National Association.

Mr. Spreull, President, having come to the meeting at this stage of the proceedings, the chair was vacated by Mr. Ritchie in his favour.

Mr. SPREULL gave a short address, thanking the members for having re-elected him President for another year, and promised to use every means in forwarding the interests of the Association. Mr. Spreull also explained the

nature of the memorial as proposed at the united meeting held in Glasgow in December last which was to be presented to the Royal College of Veterinary Surgeons by the three Associations of Scotland jointly. The Council of the R.C.V.S. were respectfully asked to adopt the scheme of a constituency representation, and allot one member to each district, giving England and Wales eighteen, Ireland three, and Scotland six; also one to each of the four Veterinary Colleges. The method of election being thus considerably simplified, as if no more than one man was nominated for a particular district, he could, after the lapse of the necessary time, be declared elected without a contest, as in the case of Parliamentary and Municipal elections.

Mr. SPREULL announced that Mr. Geo. Fleming and Professor McCall, of Glasgow, had promised to address the Association.

After the discussion of some minor matters the meeting was brought to a close. JAS. CLARK, *Secretary*.

IRISH CENTRAL VETERINARY MEDICAL SOCIETY.

THE usual quarterly meeting of the above Society was held in the rooms of the Royal Dublin Society, Kildare Street, Dublin, on the 21st March. There was a good attendance of members, Mr. W. Pallin, Vice-President, in the chair.

The minutes of the former meeting were read and signed, and the Report of the Committee appointed at that meeting, on the motion of Mr. M. Hedley, for the purpose of inquiring into the title of several condidates for Registration was laid before the society, and agreed to.

Mr. J. G. O'Donel, and Mr. Jas. McKenny, of Dublin, were balloted for and unanimously elected. Mr. A. R. Simpson, Government Inspector, Newry, was proposed and seconded for membership, to be balloted for next meeting.

On the motion of Mr. Bell, F.R.C.V.S., Clonmel, seconded by Mr. Pallin (late 20th Hussars), it was unanimously resolved to ask the Council of the R.C.V.S. to arrange to hold the annual meeting in Dublin. This resolution was discussed at some length, and there was a full concensus of opinion that the holding of the meeting in Dublin would tend materially to strengthen our position as a body, and would form the best possible protest on the part of the profession against the agitation now being carried on by a number of persons wholly unconnected with our body, with a view of establishing an independent licensing College in Ireland. A belief was expressed that this agitation is deprecated by the whole of the profession in Ireland, with the exception of some solitary individuals, who from interested motives are lending it their questionable support. The Secretary was requested to communicate with the Secretary of the College to this effect.

A number of other business matters were gone into and discussed, and the meeting was adjourned until the 5th April, for the purpose of a paper by Mr. J. D. Lambert, A.V.D., on the "Germ Theory."

A collection of specimens of surgical instruments and appliances, manufactured by Messrs Arnold and Sons, had been forwarded for inspection by the members, and created much interest.

On April 5th, the adjourned meeting for the purpose of hearing Mr. Lambert's paper was held, Mr. W. Pallin, Vice-President of the Society, again occupying the chair, in the absence of the President, Mr. J. Malcolm.

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There were also present — Messrs. M. Murphy, P. A. Lawlor, T. D. Lambert, J. Freeman, Matt. Hedley, J McKenny, H. J. Kelly, R. H. Bird, G. B. Miller, J. G. O'Donel, Dublin ; J. Bell, Clonmel ; J. Preston, Mallow ; and as visitors there were Drs. M. J. Donnelly, O'Donel, Keegan, and Cormack ; with Messrs. H. Forewell, W. Teeling, R. Cantrell (Chief Clerk, Veterinary Department, Dublin), and the Secretary.

Mr. Lambert's paper was copiously illustrated by means of diagrams, and was listened to with considerable interest.

A discussion followed the paper, in which the President, Mr. J. D. Lambert, Mr. Matt. Hedley, Dr. Donnelly, and the Secretary took part. A cordial vote of thanks to the essayist, proposed by Mr. Kelly and seconded by Mr. P. A. Lawlor, brought the meeting to a close. It was decided to hold the next meeting in the Horse Show week.

JOHN J. SPERRING, F.R.C.V.S., *Hon. Sec.*

ROYAL (DICK) VETERINARY COLLEGE.

THE annual presentation of prizes to the students attending the Royal (Dick) Veterinary College took place on Thursday, March 30th, in the Council Chambers. There was a large attendance of members of the Town Council, the Professors of the Dick College, and others.

Lord Provost HARRISON, who occupied the chair, said he was very glad to see so large an audience and so many young men connected with this college. It was exceedingly pleasant to learn that the last year—the one for which they were now acting, had been the most profitable both to the students and in every other way of any year since its commencement. They also had the largest number of students, and he was sure they had done the best work that had ever been done in their college. (Applause.) Everything, so far as he could learn, had gone on in a very pleasant manner. There had been over 130 in the class, a number which had never been reached before. The Lord Provost then expressed the hope that the class would go on increasing until it was necessary to enlarge the college. (Applause.)

Professor WALLEY said he could honestly say that on the whole the competitions during the past sessions, had been of a very high character, and in many of the subjects the papers had been exceptionally excellent. Two of the students had run very close together, although the one had kept ahead all the time, so that he had the largest share of the prizes. In conclusion, Professor Walley said he was pleased to say that so far as the harmony between class and teachers was concerned, of all sessions the past session was the pleasantest. (Applause.)

The Lord Provost then presented the prizes to the successful competitors as follows :—

Certificate for Best Matriculation Examination—Mr. Marsden, Banff. College Medals (Gold)—Physiology, 1881-82 ; Anatomy, 1881-2 ; Chemistry, 1880-1 ; Veterinary Medicine and Surgery, Cattle Pathology, 1882-3 (presented by A. Harris, Esq.)—Arthur New, Ampthill, Beds. College Medals (Silver)—Junior Anatomy, 1880-1 (Professor M'Fadyean's) ; Practical Pathology, 1882—Arthur New, Silver Medal for Distinguished Attainments—Wiliam Huckett, Folkingham. Certificate of Distinction—William Kirk, Edinburgh Silver Medal (given by Professor Walley for General Excellence in Veterinary Medicine and Surgery)—Henry Holroyd, Blackburn. Veterinary Medical Association Medals (silver) for the best Essay of the Session—Murray Lornie, Errol, Perth ; for the best Communication of the Session—John Francis Mahony, Cork.

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Highland Society's Class Medals (Silver)—Botany, 1880—Arthur New. Anatomy, 1881-2; Chemistry, 1880-1; Veterinary Medicine and Surgery. Cattle Pathology, 1882-3—Kenneth James Urquhart, Newton-le-Willows. Botany, 1881—Harry M. Maxwell, Orton Waterville, Peterboro'. Materia Medica, 1881—David J. Barry, Limerick. Physiology, 1881-2—Charles S. Smart, Musselburgh.

The LORD PROVOST afterwards congratulated the prize-winners on the magnificent trophies of their labours. He also congratulated those who had not won prizes for the race they had run, pointing out at the same time that there were various circumstances which operated in prize-winning to the favour of one class of men and against another, but it by no means followed that the race in life would be won by those who were first in the early battle. As an instance of this he referred to Sir Walter Scott, who was so frequently found at the bottom of the class. He counselled them all to work hard in theory and practice, and said that very good work had been done by former students of this College in Afghanistan, the Cape, and in Egypt. (Applause.) He was glad to learn as a proof of the harmony in which they had all been working that during the course of the session an address and a valuable ring were presented by the students to Professor M'Fadyean. (Applause.) In conclusion he thanked the Highland Society for the kind interest it showed in the College.

Bailie HALL, in moving a vote of thanks to Principal Walley and the other Professors, said the trustees and the students were much indebted to them for the way in which they had kept up the prestige of this old institution. Many of them could look back to the time when Professor Dick sat in that chamber as a Town Councillor—a man of great shrewdness, determination, and force of character. He was a man of deeds not of professions only. (Applause.) It happened that his venerable sister had been poorly of late, but whether she lived longer or not the name of Dick would go down to posterity and be esteemed by all men of veterinary science. (Applause.)

Principal WALLEY replied and moved a vote of thanks to the Lord Provost for presiding.

The proceedings then terminated.

EDINBURGH NEW VETERINARY COLLEGE.

THE distribution of medals and certificates at the close of the winter session of the Edinburgh New Veterinary College, Gayfield Square, took place recently. Principal Williams, before presenting the prizes, expressed the pleasure he had in doing so, because he could safely say he never presented prizes to classes which as a rule had worked harder. It gave him a degree of pleasure also mixed with sorrow, that in all probability this was the last winter session they would have in that building. As they were all aware, the college was very much too small for their requirements, and he had entered into an engagement for the building of another college in Leith Walk, which would be ready by next winter session. It would accommodate at least the number of students who would present themselves within the next ten years. In that building they would have one large class-room to hold 250 students, and another that would hold 100 students. In addition to these they would have a large museum, a reading room for the students, a bone room, a dissecting room, and two laboratories—one for chemistry and one for teaching the use of the microscope in connection with physiology and pathology. He referred to the importance of a knowledge of the microscope and the way to use it, and illustrated that by stating that a week or two ago a mysterious disease appeared at a farm near Stow,

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from which two horses, five cattle, several pigs and cats died between Saturday night and Tuesday morning, all presenting the same symptoms. By microscopic examination they discovered organisms in the blood of these animals, more particularly in the exudations which caused the swelling of the throat. But how to trace these organisms was a matter of some difficulty. But by means of inoculation and cultivation they found the same organisms in the water which was used at the farm, and after the supply was cut off there was not another case of disease. No veterinary surgeon need nowadays go into the world if he did not understand how to trace the origin of diseases of this kind, and to trace them successfully required an intimate knowledge of the microscope. In a great undertaking like the building of this new college he could not appeal to the public like the Universities. But his profession was a progressive one, and he had every confidence in the result. He then presented the prizes to the successful students. Mr. W. R. Davis gained the Edinburgh Veterinary Medical Society's silver medal for the best essay on the examination of horses as to soundness. He was also presented with a cheque for twenty pounds, presented by Principal Williams himself annually to the student who passed the best first and second examinations before the Royal College of Veterinary Surgeons. He then presented to Mr. A. J. Haslam, Manchester, the Highland Society's silver medals for the best examination last year in chemistry and materia medica, and also the Highland Society's silver medals for the middle examinations in anatomy and physiology this year. Mr. William Lothian, Duns, obtained the junior medal for botany. Mr. W. D. Conochie, Selkirk, and Mr. J. A. Robinson the Highland Society's silver medals for chemistry, and Mr. R. J. Hickes the Society's medals for the best examinations in the pathology of the horse and the pathology of cattle. Certificates were also given to dressers, dispensers, curators, etc. At the close, on the motion of Dr. Stevenson Macadam, a vote of thanks was given to Principal Williams. The college was instituted in 1873, when fifty-seven students attended. The session just closed was attended by 154 students.

ROYAL AGRICULTURAL SOCIETY.

At the Council-meeting held on April 4th it was reported that Professor A. P. Thomas had completed for the *Journal* his paper on the "Natural History of the Liver-fluke and the Prevention of Rot." The following preventive measures were recommended by him :—

1. All eggs of the liver-fluke must be rigorously destroyed. Manure of rotten sheep, etc., must not be put on wet ground.

2. If sheep are rotten, let them be sent to the butcher at once, unless they are specially valuable and are not badly fluked. If kept, they must not be put on to wet ground.

3. Care must be taken to avoid introducing eggs of the fluke, either with manure, or with fluked sheep, or in any other way. Rabbits and hares must not be allowed to introduce the eggs.

4. All heavy or wet ground must be thoroughly drained.

5. Dressings of lime or salt should be spread over the ground at the proper seasons, to destroy the embryos, the larval forms of the fluke, and also the snail which harbours them.

6. Sheep must not be allowed to graze closely, for the more closely they graze the more fluke-germs will they pick up.

7. When sheep are allowed to graze on dangerous ground they should have a daily allowance of salt and a little dry food.

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If all farmers will unite in carrying out the above preventive measures, suggested by the knowledge of the life-history of the parasite, there is no reason why the fatal ravages of the destructive fluke should not be so restricted that the losses would at once be reduced to a comparatively trifling amount. There is at present one obstacle in the way of the total extermination of the fluke. So long as rabbits and hares have free liberty to convey the infection from one district to another, there will always be a danger of a fresh outbreak in places where the fluke had for the time been driven out. And for rabbits in a state of nature we cannot adopt preventive measures in the same way that we can for domesticated animals; so that on wet waste lands the breed of flukes may be constantly kept up. Very much, however, may be effected by united action; and if the preventive measures which are now suggested are strictly carried out by all, we shall hear no more of disastrous outbreaks of the Sheep-rot, and something at least will have been effected towards raising the fortunes of British agriculture.

This report was adopted.

EXAMINATIONS OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

AT the meetings of the Court of Examiners of the Royal College of Veterinary Surgeons, held on the 28th and 29th March, 1883, the following students from the Royal Veterinary College were admitted members of the profession:—

Mr. Henry A. Young	The Ford, Dunmow, Essex.
„ Charles Hartley	Crewe, Cheshire.
„ Herbert Ernest Pinel ...	Coin Hâtain, St. Lawrence, Jersey.
„ Charles Edwin Nuthall ...	Down Hall, Kingston, Surrey.
„ Edward Whitley Baker ...	45, Emmanuel Street, Mile End, Portsmouth.
„ Layton J. Blenkinsop ...	39, Hilldrop Crescent, Camden Road, London.
„ John Morton	St. John's, Worcester.
„ Martin Robinson	Birdwell, Barnsley, Yorkshire.
„ Samuel James Marriott ...	The Grove, Milton, Northampton.
„ *John George Parr ...	Egerton Villa, St. James's Road, Leicester.
„ Edwin Hills Hazelton ...	9, Prospect Place, Southampton.
„ Charles Wood Page ...	The Green, Banbury, Oxon.
„ James Vincent Daly ...	Liffey Bank, Dublin.
„ *William Harvey Bloye ...	8, Westminster Terrace, Mutley, Plymouth.
„ John Bush Hart	Dunhomtollah, Calcutta.
„ David M. Barry	Churchtown, Cork, Ireland.

The following students passed their "Second Examination" on 4th, 5th, and 6th April:—

Mr. Joseph Smith.
„ Walter Bugg.
„ H. E. C. Selfe.
„ T. W. Turner.
„ J. G. Watson.
„ *T. A. Britton.
Mr. F. Bazley.
„ J. Walker.
„ W. Brookes.
„ H. C. Wilkie.
„ *A. C. Piesse.
„ Frederick Charles Mahon.

Mr. *G. H. Evans.
„ †H. B. Whigham.
„ W. Drewitt.
„ *J. Hammond.
„ A. C. French.
„ E. R. Butler.
„ *H. L. Pemberton.
Mr. W. H. Taylor.
„ W. Willis.
„ J. E. Rickards.
„ E. J. Catmull.
„ G. H. Golding.
„ †E. Taylor.

The following students passed their "First Examination" on 7th and 9th April:—

Mr. F. M. Stephens.
„ F. R. P. Gooderson.
„ *R. A. Lord.
„ B. Lacey.
„ A. E. Sangster.
„ J. M. Tebbot.
„ G. C. Cox.
„ R. Polglase.
Mr. G. D. Lansley.
„ N. Blancard.
„ Joseph Bates.
„ T. S. Lucking.
„ †J. T. Vickery.
„ W. James.
„ *H. G. Rogers.
„ G. E. King.

* Marked thus passed Great Credit.
† Marked thus passed Very Great Credit.

ROYAL VETERINARY COLLEGE.

Matriculation Examination, April 25th and 26th, 1883.

SUCCESSFUL CANDIDATES, IN ORDER OF MERIT:—

Mr. J. A. Hives.
„ H. Goodwin.
„ L. P. Rees.
„ W. E. Dain.
„ L. Silverthorne.
„ J. Porter.
„ W. Sheel.
Mr. W. Western.
„ J. A. Sudren } Equal.
„ C. A. Johns }
„ C. K. Dobson.
„ H. Broad } Equal.
„ W. E. Matthews }

Parliamentary Intelligence.

House of Commons, April 2nd.

THE PURCHASE OF MULES FOR THE EGYPTIAN EXPEDITION.

Dr. CAMERON asked the Surveyor-General of Ordnance respecting the mules purchased for the Egyptian expedition by Major Carré at Smyrna, what was the number of animals purchased, and the number declared fit for service when landed at Ismailia, and whether Major Carré, during his stay at Smyrna, was the guest of the contractor from whom he purchased the said mules.

Mr. BRAND said that the number of animals purchased was 700. The board of officers found 198 fit for immediate service out of the first consignment of 612, but the majority of the balance—*i.e.*, 414 mules—were fit for work after periods ranging from five to fourteen days.

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CATTLE PLAGUE IN EGYPT.

Dr. CAMERON asked the Secretary of State for War whether it was true that two outbreaks of Cattle Plague occurred among the oxen sent from India for the use of the troops in Egypt; whether in one of those outbreaks the affected animals, instead of being destroyed and buried, were simply driven forth to die; and whether the result was that the road to Kassassin having been thus infected, cattle for the use of the troops were subsequently obliged to be sent up by train.

Sir A. HAYTER: Yes, sir, it is true that two outbreaks of Cattle Plague occurred among the Indian cattle. We have definite information as to the cattle first affected, thirty-six in number. Of these ten died and twenty-six were destroyed and buried. We have no details as to the second outbreak among the Indian cattle, as to the numbers affected or as to their disposal. It is not the fact that the road to Kassassin ever became infected, and the cattle were sent through by rail to Cairo, not on that account, but to ensure their arriving in good condition for issue to the troops. There was not a single case of Rinderpest or Cattle Plague throughout the campaign among the cattle destined for the use of the English troops.

House of Commons, April 16th.

MULES FOR THE EGYPTIAN EXPEDITION.

Dr. CAMERON asked the Financial Secretary to the War Office, with reference to the mules purchased by Major Carré for the Egyptian Expedition, whether they had as yet been paid for; if so, it being acknowledged that the veterinary surgeon who accompanied Major Carré to Smyrna refused to pass the mules, and that the Committee appointed to report on them on their arrival at Ismailia reported only 198 out of a consignment of 612 animals as fit for service, by whose authority the payment was made.

Sir A. HAYTER: The mules alluded to in the hon. member's question as purchased at Smyrna, were paid for in London under the terms of the contract on the receipt of the mules in Egypt being certified by the local military authorities. The board held in Egypt declared 198 mules to be fit for immediate service; the majority of the remainder were fit, and went to work within five to fourteen days.

Dr. CAMERON further inquired whether it was customary to pay for animals purchased under the inspection of a veterinary surgeon when that veterinary surgeon had refused to pass them.

Sir A. HAYTER: It is not the case that the veterinary surgeon refused to pass the mules.

THE VETERINARY DEPARTMENT OF THE ARMY.

Colonel O'BEIRNE asked the Secretary of State for War whether it was contemplated in the forthcoming warrant to apply the same principles which regulated the ratio of pay between effective and non-effective pay in other departments of the Army to the veterinary department.

Sir W. HAYTER: No, sir; it is not proposed to make any change in the retired pay of the veterinary department. My hon. and gallant friend is probably aware that the present rate of retired pay for a veterinary surgeon

is one-half the rate of full pay of their rank at retirement after twenty years' service, and seven-tenths of the same after twenty-five years' service. It is not proposed to disturb these rates at present.

Army Veterinary Department.

Gazette, April 3rd.

Veterinary Surgeon T. J. Symonds to be Veterinary Surgeon, First Class.

Obituary.

THE death is reported of Mr. John Parker, M.R.C.V.S., who died at Bakewell, Derbyshire, on March 17th, aged only thirty-five years. He graduated in 1869.

Charles Middlehurst, M.R.C.V.S., of Liverpool, who graduated in 1872, died on March 26th.

Notes and News.

A HORSE CORONER'S REPORT.—At a recent meeting of the Islington Vestry Mr. Caleb J. Hunt, Inspector of Houses for Slaughtering Horses, reported that during the last twelve months the animals brought to the slaughter-houses in his district (Islington) have been as follows:—Horses, alive, 4,170; cows, dead, 5,650; bulls, dead, 20; heifers, dead, 6; mules, dead, 6; donkeys, alive, 14; donkeys, dead, 20; stirks, dead, 2. He also stated that he had been the means of restoring to their owners two live horses.

PROFESSIONAL JEALOUSY.—A physician falls into a fit while making a round of visits, and is carried into a drug store. "Send for Dr. X——," says somebody. "No, no, not for him," says the dying man feebly, at the mention of his rival's name. "If he brought me round it would advertise him! I prefer to die."

IS SYPHILIS COMMUNICABLE TO THE LOWER ANIMALS?—Professor Neumann has lately published (*Wiener Med. Wochenschrift*) the results of certain experiments performed by himself on various animals, with the object of determining the above question. The animals experimented on were three apes, two horses, a hare, a rabbit, a guinea-pig, a marten, a rat, and a cat. These animals were carefully inoculated in one or more places, and, in some cases, on several occasions, with the discharge of indurated syphilitic sores, or of syphilitic papules, or the indurated sore itself was excised, and immediately introduced into the cellular tissue of the animal. The pus of soft chancres was also inoculated in some of the experiments. The material employed was transferred directly, and without delay, from the patient to the animal, with all due precaution. The period during which the animals remained under observation, after inoculation, varied considerably; in some, the time seems to have been hardly sufficient for forming a decisive opinion; and, in some, the duration is not stated. In one instance,

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however, that of a female ape, the animal was under close observation for four months and a-half, during which time it was inoculated on eight separate dates, on various parts of the body, with the secretion both of hard and soft sores, a hard sore being also implanted beneath the skin on one occasion. In this, as in all the other experiments, the result was negative ; that is to say, although local reaction—*e.g.*, abscess—sometimes occurred at the site of inoculation, nothing resembling a hard or a soft sore was ever produced. Thus Neumann is of opinion that syphilis is a disease belonging exclusively to human beings.

MULE-BREEDING OPERATIONS IN MADRAS.—At last there is a prospect of these operations proving a success, states the *Madras Times*, Government having entrusted their direction to a specially trained officer, Veterinary Surgeon Mills. As our readers may recollect, Mr. George Shaw, the popular veterinary surgeon, first induced Government to move in this direction some four or five years ago. Some very fine donkey stallions were imported from Spain and Egypt, and distributed over the various Collectorates in the Presidency. Unfortunately for the scheme, Mr. Shaw had to go home sick shortly after, and the work had to be taken up by another officer, Mr. Adams, in addition to his other duties. With the conservative habits of the Madrassi ryot to contend against, and pressure of his other duties, Mr. Adams has bravely fought on, though with but little success. Recently Government created the appointment of Inspector of Cattle Disease, and finding a proper man handy in Veterinary Surgeon Mills, they nominated him to the duty, and have now added the direction of the mule-breeding operations to his duties. Under Mr. Mills the scheme is bound to succeed, if it is possible to do so; and as success will be a great advantage to the Presidency, we shall be happy to assist Mr. Mills by giving prominent insertion in this journal to any suggestion he may desire to put before the public.

Correspondence, etc.

A WORD OF WARNING.

DEAR SIR,—I see the North of England Veterinary Medical Association, being unrepresented on the Council of the R.C.V.S., have made Mr. C. Stephenson their nominee for the forthcoming election. I, for one, should have been pleased to help them; but how can they expect us to vote for a man who has proved himself to be an enemy to the welfare of the profession, viz., by doing all in his power to prevent the Veterinary Surgeons Bill becoming law? At a meeting of the above-mentioned Association the other day, when speaking of compulsory pupilage, he said :—"You also know that I honestly (?) opposed the Veterinary Surgeons Bill, that was recently passed by a fluke, and that in doing so I received a good deal of blame and even abuse." Allow me to tell Mr. S. that if it had not been for the opposition of two or three members of our profession (himself included), the Bill would have passed in almost its entire state, instead of having to be curtailed in many respects ; and as regards the blame and abuse, I think he richly deserved all he got, and more besides. Now that the whole profession have a chance of showing their abhorrence of such conduct, I sincerely trust they will do so by placing Mr. C. Stephenson at the bottom of the poll.—Faithfully yours,

"A COUNTRY PRACTITIONER."

"TIPPING."

SIR,—All who read "East Anglia's" remarks (which appeared in the Journal for March) can find something to which they can say Amen; but as regards the system of "tipping" of which he complains, he is under "a cloud the size of a man's hand." If the system of espionage ended with an occasional glass of beer or the extreme solicitation shown to drink the veterinary surgeon's health at Christmas, there would not be so much to complain of.

The East Anglians are evidently in advance of their southern brethren, and this applies to the Metropolis, as well as to other large towns.

It is a common practice in Brighton to give the coachman a shilling out of every set of shoes supplied, and eighteenpence is no uncommon "discount" to give where the *professional gentleman* and the coachman can agree to charge a high price. A still more lucrative *arrangement* is that of charging for a set of shoes every three weeks, and removes every two weeks, irrespective of the wear or requirements of individual horses, while supplying as few shoes as can be retained on the feet by occasional nailings. Besides the shilling or eighteenpence per set which the coachman here gains, there is a division of the spoil, the sets *not* supplied, but booked by the calendar. This is no fancy picture, but a hard fact, as I know to my cost, since I had a shoeing forge of my own, and which never paid, for the simple reason that I would not subscribe to the custom, and was often during my tenure of it openly laughed at by the coachmen whose patronage I must necessarily solicit.

London West-end practitioners who keep shoeing forges (or are kept by them) could say something of this evil, but for very shame the matter is suppressed.

Excessive competition is, doubtless, the source and main-spring of this system, but a great deal of indifference is shown on the part of employers. A marked instance of this came under my notice while employed by one of the most eminent West-end veterinary surgeons.

A Lord Chief Justice's horses, which had been shod at my employer's forge, were, without any reason being given, taken to another smithy, and I was deputed to write to his Lordship and complain that the coachman had taken them to Mr. —— because he could have five shillings in the pound, or "what he liked," etc., "according to arrangement." His Lordship did not reply, and we lost his custom.

Some horse-owners entertain, rightly or wrongly, a very high opinion of their men's honour and integrity, while those who in many cases form a more correct estimate do not like to interfere or give themselves any trouble, belonging themselves to a class of Sybarites who do not like anything approaching to the uncomfortable where no *very* large amount of principle is involved, or the peculation is not *great* or *easily remedied*. Others, again, are absolutely *afraid* of their coachmen, and while expressing their disgust with the state of things, must pretend not to see, or the very valuable horses might suffer some injury. A not inconsiderable number of horses of course belong to ladies, the bulk of whom are victimised, and who are only allowed the use of their horses as a favour, some reason or other always cropping up why this or the other "oss" is out of sorts.

It is no use, as "East Anglia" suggests, for us to congratulate ourselves upon "our noble profession" while we remain blacksmiths, and we cannot expect the public to discriminate between the shoeing-smith who doctors horses and the doctor who shoes them.—Yours, etc.,

Brighton. HAROLD LEENEY, M.R.C.V.S.

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GRUNTING IN PROFESSORS.

DEAR MR. EDITOR,—I would crave your permission to be allowed to make a few remarks on Professor Walley's communications in the last VETERINARY JOURNAL, under the headings of "Grunting in Horses" and "Veterinary Politics." With regard to Grunting in horses I have not much to say, but would rather treat it from the comparative pathologist's point of view, and include Grunting in mankind, or rather professors—for some of those we now hear about appear to be far ahead of mankind in general. To some extent, Professor Walley's remarks about Grunting in horses are applicable to the same defect in man, inasmuch as it is indicative of cardiac defects; but it differs, again, in being emitted—not when "ribbed" (who coined the elegant word?), but on every occasion and in regard pretty well to everybody except the grunter himself. Grunting in some men (and in another domesticated animal) is almost a natural mode of expression, and as it is mimetic, there can be no doubt a grunting teacher begets a grunting pupil; therefore Grunting in man is a greater nuisance than it is in a horse. The Professor's second letter is nothing but a series of harsh grunts, without even the apology of being "ribbed." In his discontented humour he hits out wildly at everybody and everything, except the phenomenon of the age—Professor McFadyean—who, if his address to the students is to be taken as a proof, is even a more inveterate and ill-natured grunter than his senior, from whom, no doubt, he has borrowed the habit. Both grunt at the Council, at the examiners, and at the unfortunate members of the profession whom nature has not endowed with such transcendent abilities, the only grunt of satisfaction the young Professor gave being at the failure of the Royal College to obtain assistance from the Government in procuring a decent home. If the two Professors are as accomplished in their teaching as they are in grunting, truly their students must be considered fortunate. That the younger professor must be something far beyond anything the profession has ever produced hitherto, is evident from the statement made by the senior Professor, who asserts that he was offered and refused a position at a salary exceeding the FOUR figures—which would not be less, I infer, than £10,000. This does strike one with awe and wonder, and these must give place, eventually, to admiration, if not veneration. We, poor mortals, who have often to be satisfied with a salary less than the four figures, can only feel astonished that such a priceless personage should possess so much humility and such a spirit of self-sacrifice as to remain a third-rate teacher.

When Professor Walley grunts at the Council, and states that for the last two or three years the schools have been kept by it in a perpetual state of uncertainty and unrest, he is guilty of asserting what has no foundation in fact. Nothing has been done by the Council to affect the schools, and the curriculum and examinations remain now as they have been for more than two or three years. The Professor himself is the only member of Council who has attempted to upset arrangements, as his notices of amendments of bye-laws and alterations in the examinations are never absent from the notice-board. If he has so muddled himself as to fancy the Council has introduced these notices, then no one can help that. All that can be said is that it would appear the Professor is not satisfied unless all his students are passed; and the objects of his notices are to make the examinations so easy that totally incompetent men will receive diplomas. It is sincerely to be hoped that the Council will not sanction one of these alterations. The professor is wroth because the College will not adopt his views—therefore I suppose he fancies himself "ribbed," and grunts.

Much spurious sympathy is manifested by some professors for the students, but, from what I can see and learn, this sympathy is never extended towards remittance or diminution of their scholastic fees, poor though the lads are said to be. On the contrary, I am informed that excuses are seldom wanted to make them pay for extras.

The object of some teachers is to make as much money out of the students as they can, by getting them into the schools and out again as soon as possible. Their sympathy for them does not extend beyond this, I fear, as they express no sympathy for them when they become practitioners—on the contrary, it is disregard for their interests and contempt for their abilities.

As to the Professor's grunt at the examiners, that can be explained by surmising that they do not pass all his students, and so enable him to make room for more. The difference between Scotch and English practice is all nonsense, and only brought in to excuse a grunt. If two or three hundred miles should make such a radical difference in practice, then all I can say is that the teaching must be something extraordinary. The grunt at mistakes made by practitioners is not in good taste, no more than his other grunts are. When we know of the mistakes made by such talented persons as professors, and read the conflicting evidence they give in the witness-box, one is tempted to ask in what respect they differ from ordinary mortals.

When Professor Walley grunts at the Council, and accuses it of everything that is bad, he forgets that it is elected by the entire body of the profession of which he is a member, and that he himself has a seat at the Council-board, where he can state his grievances, and if they are substantial they will be remedied. If they are not to the advantage of the profession, then it is to be hoped they will be left unredressed. The Professor, we may hope, is not the only wise member of Council. With regard to his grunt at the army veterinary surgeons, I leave them to notice that if they think it deserves notice.

Finally, let me say that a carping, peevish temperament is not admirable in any man, much less in one who should be an example to the young men whom he instructs. To find fault or grunt does not demand any ability, and though it is also easy to assert that the advancement of the profession, etc., is dear to the grunter, yet something more is needed than mere lip service. Few grunters ever do much good, and, like the grunting horse, they are only to be valued at a reduced figure. The profession is pretty well grunted at by some of the professors : suppose we reverse things, and begin to find fault with them. They are not immaculate—far from it.

Might I ask what the majority of the professors, and especially Professor Walley, have done, especially in recent years, to promote the interests of the profession ?

The profession does not live for the professors—this is my grunt, in imitation of Professor Walley.—Yours, etc.,

April 16th. "COUNCIL-MAN."

INFLUENZA AT WAKEFIELD.

DEAR SIR,—Unfortunately, being knocked off work, I looked at your Journal, and find there a mistake as to Wakefield being one of the first places in which the present scare about the "Pink-eye" is said to be so destructive. My impression is that there has not been a single case in the borough.

There has certainly been a great loss at Sharlstone Colliery, but what the greatest number of ponies have died from was not that contagious disease, but from bad management, many of the poor animals having the harness put on at 1 o'clock in the morning of Monday, and not removed until 10 o'clock on Saturday night following. This and want of food and water were the cause of the mischief.

They did get some Russian ponies, but they were bought in London, stived up in London, and then turned out on their arrival as soon as possible, and sent into the pit to meet with the usual bad management.—I am yours faithfully,

Wakefield, *March 8th.* W. E. NAYLOR.

"A SUGGESTION."

SIR,—Would you allow me to suggest (seeing through the letters to your journal that the profession seems to be rousing itself to a sense of its dignity) that you should publish in your columns reports of cases in which veterinary surgeons are discreditably engaged, as perhaps, though they fear not God, neither regard the public, yet they may display some amount of caution with the knowledge before them of the fact that the eyes of the profession at large will be turned towards them. I enclose you the report of a case* (cut from a local paper) occurring at the Hove Police Court, where a man was charged with working two donkeys in an unfit state, one of them with a bad sore on its shoulder, and both very weak. A qualified practitioner from Brighton swore that "the donkeys were equal to the load they had got and that no cruelty was involved in working them." The chairman, accompanied by the witness, left the Court in order to examine them, and on their return the witness retracted his former statement entirely by saying that one of the donkeys was "tender on the spine," and "not fit to go in the shafts."

The chairman, in censuring the witness for his previous statements, said that he had never heard such evidence before; and to crown all, an "existing practitioner," who, at the request of the bench, examined the donkeys, gave

* At Brighton, "Henry Frost" was summoned for working two donkeys whilst in an unfit state.—P.C. Fox also met this prisoner that morning with two donkeys attached to a cart, laden with coke. One of them had a bad sore on the shoulder, and both were very weak. They leaned against each other and could scarcely move.—Mr. . . . . , veterinary surgeon, who gave evidence for the defence, said that he thought the donkeys were equal to the load they had got, provided the cart was loaded properly, and it would not be cruelty to work them.—General Shute left the Court to examine the donkeys, and the witness accompanied him. On their return into Court, the witness re-mounted the box, and said one of the donkeys was tender on the spine, and it was not in a fit state to go in the shafts. Any pressure hurt it. The chairman censured the witness for his previous statements. and said he had never heard such evidence before. Witness said he had spoken from the best of his belief; he had very little time to look at the donkey before. The chairman said witness had no right to say anything upon his oath which he had the slightest doubt about. Mr. Knight, a veterinary surgeon, at the request of the Bench, examined the donkeys, and said he was of opinion that one of them was entirely worn out, and unfit for work. In answer to the chairman, prisoner said he hired the donkeys a month ago, and they were then in the same state. The chairman ultimately intimated that the owner of the donkeys would be summoned, and prisoner was bound over in his own recognisances of £5 to appear on Monday next.

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it as his opinion "that one of them was entirely worn out and unfit for work."

How can the public respect the profession as a body when they have the spectacle presented to them of an M.R.C.V.S. making such statements in a police-court, and being gravely censured by the "great unpaid," and worse still, his opinion "reversed" by a quack?

Will not people who look upon this case with an uneducated eye, think that one man is as good as the other, or as the democratic orator put it, "a precious sight better?"—I am, sir, your obedient,

"EMBRYO."

A CASE FOR CHARITY.

DEAR SIR,—Allow me to acknowledge, through your columns, the receipt of the following contributions on behalf of Mrs. Brosnan, and to thank the contributors for their kindness.

Painful and necessitous as is the case of Mrs. Brosnan, it is more than paralleled by that of the widow of an English veterinary surgeon who recently died in the county of Durham, leaving his wife and five children, not only unprovided for, but in the poor-house.

I mention this case, not with the direct object of soliciting contributions in aid of the lady and her children—though I shall be very happy to receive such if any of my professional brethren wish to contribute to so good a cause as the assistance of the widow and the orphans—but rather for the purpose of urging upon every member of the body corporate the advisability, not to say the duty, of joining the Defence and Benevolent Society; as even though any individual member may never require its assistance, he may be giving aid to others not so fortunate as himself.

Royal Veterinary College. I am, yours truly,

April 19th. THOMAS WALLEY.

Subscriptions in behalf of Mrs. Brosnan.

R. Rutherford, £1; H. Thompson, 10s.; — Constable, 5s.; Capt. Hayes, 10s.; C. Cunningham, 10s.; C. Philips, 10s.; Veterinary Staff and Students, R. V. College, £6; A. J. Owles, 10s.; H. W. Caton, £1 1s.; Jno. Bell, £1 1s.; W. Hack, £1; G. Goodacre, 10s. 6d.; J. S. Hurndall, 5s.; R. C. Edwards, 10s.; J. Fraser, £1 1s.; Mrs. A., £1; G A. Oliver, £1 1s.; J. R. Cox, £2 2s.; T. Corby, £1 1s.; T. Gregory, £2 2s.; J. Donald, 5s.; — Campbell, Kirkcudbright, 10s.

TO CORRESPONDENTS.

EXISTING PRACTITIONER.—The Register of Veterinary Surgeons, just issued, contains the names of those who have been selected for registration.

F. HARVEY.—There are no special books which treat of grasses as influential in producing disease in cattle and other animals. In the different books on botany, the diseased condition of plants which prove injurious to animals is sometimes alluded to. See Berkeley on Fungi. There are papers in various agricultural journals on the same subject; but they are few and far between.

STOMATITIS IN CALVES.—It would be esteemed as a great favour if members of the profession who have cases of this malady in their district, would forward diseased portions, in as fresh a condition as possible, to the Brown Institution, Wandsworth Road, London, S.W. Important investigations are now being carried out with regard to it, and fresh material is needed.

THE REGISTER OF VETERINARY SURGEONS.—We are asked to announce that the Register of Veterinary Surgeons for 1883 is now published, price 2s., post free. Applications to be made to Messrs. Baillière, Tindall, and Cox, King William Street, Strand, London, W.C.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from T. Greaves, Manchester; H. Leney, Margate; T. W. Cave, Nottingham; A. W. H. Wirth, Utrecht; F. Harvey, St. Colomb; J. A. Nunn, A.V.D., Punjab; C. Parker, Bakewell; J. Lambert, A.V.D., Dublin; A. Lingard, London; E. E. Batt, London; T. Walley, Edinburgh; H. Jenkins, London; "Council-man;" J. B. Gresswell, Louth; W. R. Hagger, A.V.D., Woolwich; A. W. Hill, London; "Country Practitioner;" A. Bain, Liverpool.

BOOKS AND PAMPHLETS: *A. W. H. Wirth*, Negende Jaarverslag van Het Parc Vaccinogène Bij's Rijks Veeartsenijschool te Utrecht, 1881; *C. A. Piétrement*, Les Chevaux dans les Temps Prehistoriques et Historiques; *A. Barbou*, Le Chien, son Histoire, ses Exploits, et ses Aventures.

JOURNALS, ETC: *Archiv für Wissenschaftliche und Practische Thierheilkunde; British Medical Journal; Lancet; American Veterinary Review; Live Stock Journal; Recueil de Méd. Vétérinaire; Wochenschrift für Thierheilkunde; National Live Stock Journal; L'Echo Vétérinaire; La Clinica Veterinaria; Medical Press and Circular; Field; Lidskrift för Veterinär Medicin och Husdjursskötsel; Edinburgh Medical Journal; Archives Vétérinaire; Annales de Méd. Vétérinaire; Der Thierarzt; Revue Vétérinaire; Journal de Méd. Vétérinaire; Practitioner; London Medical Record; Proceedings of the Medical Society of the County of Kings; Mark Lane Express; Flood and Field.*

NEWSPAPERS: *Madras Standard; Madras Times; Freeman's Journal; Irish Times; Scotsman; Irish Sportsman; Manchester Guardian.*

TO CORRESPONDENTS.

No notice can be taken of anonymous communications. Whatever is intended for insertion must be authenticated by the name and address of the writer, not necessarily for publication, but as a guarantee of good faith. We cannot undertake to return rejected communications.

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